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TUMOR OF THE KIDNEY

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We wish to present some cases of kidney enlargement which might well be grouped clinically as "tumors" in the same sense that Bloodgood calls all masses in the breast "lumps" until he knows their specific nature.

The most recent authoritative work on urology states that "it has given no systematic classification of renal tumors because it is not believed that it is possible to do so at this time. The desirable thing is to get rid of all unfounded preconceptions in the hope that eventually the pathology of renal neoplasms and cysts may be placed on a sound basis." We likewise offer no argument on the exact pathogenesis of various kidney tumors, as we feel that such discussions are of no practical value to the clinician.

We have seen several cases of the huge so-called sarcomas of the kidney in young children. They may be dismissed from consideration with the brief statement that their symptoms are very different from those of tumors in the adult, hematuria very rarely occurring; that they run a very short course, death coming quickly, usually without metastases having formed; that the tumor is the prominent feature and causes various pressure manifestations on adjacent organs.

Ordinarily hematuria is the first and foremost symptom in tumors in the adult, the enlargement seldom being noted by the patient, on account of the high position of the kidneys in the abdomen, even when it is distinctly palpable by the physician. The bleeding may be slight or severe; it may be prolonged or it may clear up very quickly, its disappearance frequently may be ascribed to some medicine or treatment given and much valuable time may be lost before a recurrence warns that accurate diagnosis is advisable. Intervals between bleedings may be long and give a false sense of security.

While hematuria occurs in eighty-five percent of the cases, and may be associated with colic due to passage of clots down the ureter, pain due to tumor itself is not nearly so frequent, being noted in about forty percent only, the colic in forty-six percent.

As the vast majority of kidney tumors are the so-called hypernephromas, better classified as carcinomas, loss of weight is frequently noted, sixty-seven percent in the Mayo Clinic series. In these cases weakness is also a prominent symptom.

A palpable enlargement is noted in about thirty percent; as many are polar tumors, those starting in the upper pole naturally will escape notice until late, or will not be felt at all.

The triad of cardinal symptoms, hematuria, pain, tumor, generally make an easy diagnosis, which may be confirmed by exact cystoscopic and urographic data. But one, or more, of these is lacking in sixty percent of the cases. Usually it means a painstaking effort to find the cause of a hematuria, to determine the character of an abdominal tumor, or to seek the explanation of abdominal pain.

Nine cases presented themselves because of bleeding. Of these, four had definitely palpable tumors in the kidney region; one

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had bilateral masses and was finally diagnosed as polycystic kidney; three are still in the undecided class. Four are definite carcinomas, one of which was masked by the presence of stone in the ureter and not diagnosed until a pyelogram was made after stone was removed and metastases had occurred in the skin of chin and shoulder. One case is a chronic colon infection with massive hemorrhage from kidneys and showing in the bladder the very rare condition of malakoplakia.

Six cases sought diagnosis of an abdominal tumor apparently involving the kidney. Three of these were kidney tumors: one, a solitary cyst of the lower pole of right kidney; one, an enormous polycystic kidney with multiple abscesses; the third, an embryonic (sarcoma) tumor in a child a year old. One turned out to be splenic tumor; one, a large ovarian cyst (in the kidney area) with a very long pedicle; one, a fused ectopic kidney.

Pain as a single symptom was noted in two cases. One patient said she felt as though she had a base-ball in her side; a cystic mass was felt which proved to be hydronephrosis. The other came with diagnosis of kidney tumor by the physician, but she, herself, complained only of pain in left side, as he had not told her about finding tumor; the pain was characteristic kidney colic with typical radiation; doctor found microscopic blood in urin; this was the ovarian cyst case mentioned above. Pain (not colic) was a marked symptom in two hypernephroma cases, and in the two cases of polycyst kidney; none at all was noted in two cases of hypernephroma.

We will present some slides of the various cases noting the main facts of history symptoms, and you may form some idea as to how the diagnosis was reached in each case.

Case 1. E. O. 27 years. Dr. J. Camp, Pecos. Pain in left side of abdomen began two months ago, is knife-like, and radiates back to kidney. It is accompanied by nausea and vomiting. Blood in urin. 6 F 30 cm. both sides—no pus. Pyelograms show normal kidney pelvis; large globular shadow below; this is felt rather indefinitely as patient is very fat. Ovarian cyst with elongated pedicle removed.

Case 2. F. D. 55 years. Dr. M. O. Wright referred the patient with diagnosis of hypernephroma. Pyelogram shows normal kidney otherwise. Operation, very large spleen removed.

Young states that the symptoms of solitary cysts are not characteristic. Indeed there are only seven cases in the literature in which a positive diagnosis was made before operation. Urinary symptoms and pain are practically always absent so that the tumor itself is usually the initial symptom.

Case 3. J. H. R. 48 years of age. Chief complaint, tumor in right side of abdomen. High blood pressure, 206-96; 6 F obstructed at 25 cm. Pythalein five minutes both sides one-half hour secretion, R. 15%, L. 12%. Pyelogram shows rounded mass below kidney, slight broadening and distortion of lower calyx, right ureter pushed almost to mid-line of abdomen. History of tumor was 15 years duration. Diagnosis was solitary cyst of kidney. Operation Mayo clinic, kidney removed. Single cyst 12 cm. in diameter.

Case 4. J. B., 45 years of age. Dr. Galloway, Roswell. Pain in left side, fever pyuria. Seven years previously, operation for cyst of right kidney. One year ago, severe pain in left side, pus in urin, mass in kidney region. Is very large, hard and irregular in feel. 6 F 30 cm. without obstruction, pus from left kidney. Pyelogram shows typical distortion of polycystic kidney. Began operation of an acupuncture of cyst; as this progressed we deemed it advisable to remove kidney.

Case 5. J. B. D., 43 years; Dr. McKinley, Alamogordo. Patient complained of hematuria of few weeks duration, without pain. Had noticed lumps in both sides of abdomen for five years (did not tell about this until later); also had severe pain in side (did not tell this); much blood; no pus in urin. There was marked cystocele (could have bleeding from this); 6 F. 30 cm. each side. Fleshy woman. Round hard masses in both flanks. pyelograms give bilateral shadows, typical of polycystic kidney.

Case 6. L. O., 31 years; Dr. E. C. Prentiss. Complained of pain in stomach. Was treated five years for stomach ulcer. A mass was felt across mid-line below umbilicus, and ectopic fused kidney was demonstrated by pyelogram.

Case 7. F. S., 30 years; Dr. F. B. Evans. Patient had severe pain in left kidney, with attacks of aching pain, no colic; feels lump like base-ball in side; four years duration. 6 F 30 cm. both sides, no pus or blood. The pyelogram shows large extrarenal hydronephrosis with strictures of ureter.

Case 8. A. McA., 51 years. Dr. Goodsell. Chief complaint: hematuria, very profuse; pain in bladder area. Kidneys: large and palpable. Bladder shows many yellow-red tumors. Pyelograms show marked distortion of pelvis, calyces, dilation of ureters. Much pus from both kidneys. Was severe chronic kidney infection and malakoplakia of bladder.

Compression of part or all of pelvis and pyelogram is fairly characteristic of carcinomas, and when bleeding is seen to come from orifice of that side, we can make the diagnosis readily.

Case 9. J. H. H., 50 years; Dr. F. B. Evans. Patient complained of indigestion, pain in left kidney. Pain in kidney dates back 18 years. Hematuria two years ago, very severe. Radium three years ago for fibroid tumor. B. P. 160-100. Globular mass palpable at lower pole left kidney, size of a base-ball, not tender, freely movable. Phthalein R. 12.5% L. 7.5% in 15 minutes. The pyelogram shows moderate distortion and compression of lower calyx. Diagnosed as hypernephroma; nephrectomy; diagnosis confirmed.

Case 10. G. H. S., 31 years; Dr. D. Allison. Complaint: hematuria; began one month ago, attack lasting one day. Present attack began the day of examination. Bladder full of clots, no blood

seen coming from orifices. 6 F. 30 cm. each side, no pus, cultures negative. Pyelogram shows marked distortion and compression of calices and pelvis of right kidney. Diagnosis, hypernephroma of right kidney. Operation refused. Operation performed later by another surgeon; death after few days. Pathological report was hypernephroma.

Case 11. W. H., 48 years; Dr. Holt. Complaint: hematuria; began one month ago; patient feels very weak. Blood gushing from right orifice. Pyelogram shows shadow of tumor in upper pole of right kidney, with marked fluttering and distortion of upper calyx and pelvis. Wassermann four plus. Diagnosis was hypernephroma.

Case 12. S. A., 60 years; Dr. Rice. Complaint: pain in right kidney, hematuria. Pain began five months ago. Severe bleeding and later suppression of urin. B. U. 84; Hgb., 70%; B. P. 135-90; languor extreme. 5 F only 5 cm. right side; x-ray shows stone shadow in right ureter. Operation for stone which was milked into bladder. One month later pyelogram made; shows distortion and compression of right pelvis very marked; and attack of tonsillitis seemed to precipitate a shower of metastases in chin, neck, shoulders and back. Excision of nodule showed typical hypernephroma structure.

Case 13. O. R. A., 32 years; Dr. Armistead. Complaint: hematuria, one attack eight months ago; second began four months ago and has been continuous, no pain. Bleeding is slight, apparently from left kidney. Pyelogram shows moderate hydronephrosis with stricture at uretero-pelvic juncture. Hemorrhagic nephritis.

Case 14. T. B., 29 years; Dr. Haffner. Hematuria of nine months duration; pain in left kidney. Blood comes from left ureter in stream, no pus. Phthalein. R. 10%, L. 12.5%, 20 minutes. Tumor or unilateral hemorrhagic nephritis. Pyelogram shows beginning changes but nothing definite. Wassermann xxxx.

Case 15. F. W. S., 43 years; Dr. J. Camp. Hematuria for three years, very severe attacks. Wassermann, xxxx, but intensive prolonged treatment helps not at all. Double ureter, left side; blood from all three openings. Cause?

CONCLUSIONS

1. We may emphasize once more the necessity of accurate investigation by a competent urologist of all cases of hematuria.

2. We may readily see that certain cases may be diagnosed directly from the pyelogram. But in general it is important and more accurate to confirm this and so to give careful consideration to all available evidence and assign due value to history, symptoms, physical examination, cystoscopic and radiographic data. When radical procedures are contemplated the advisability of such will have to be determined by the exact status of kidney function (as determined by the blood chemistry and phthalein tests), presence of metastases and other factors.

3. In the carcinoma cases (eighty percent of all kidney tumors) the so-called hypernephroma or papillary adenocarcinoma, some data for prognosis can be gathered by pathological examination of tumor. The Mayo statistics show that with those of clear-cell tumors fifty percent are dead in two to three years; of the granular-cell cases seventy-five percent are dead; alveolar cancer shows eighty-five percent dead; malignant cystadenoma, thirty-three percent dead.

4. Occasionally patients live a long time after operation; one operated on by Vance is still alive after fourteen years.

5. Do a real radical operation in every case of hypernephroma. No lumbar incisions but the one advised by Cabot or the anterior T shaped incision.

THE PRESENT STATUS OF THE WASSERMANN REACTION*

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There is no disease in which complement fixation has proven so constant and valuable a diagnostic procedure as in syphilis. But it is hardly to be denied that syphilis itself is often the most mishandled of all diseases and the Wassermann reaction the most frequently misinterpreted of all laboratory examinations.

To many physicians a positive result invariably indicates syphilis and a negative report means no syphilis, without exception or qualification. This attitude constitutes in reality a demand that the complement fixation test be made infallible, that reports should bear the significance and authority of Holy Writ and that, through the aid of the laboratory, the diagnosis of syphilis is to be stripped of all difficulties and complexities other than those dependent upon the collection of a blood specimen. To other men the very name of **Wassermann Reaction** is anathema; they have little or no faith in the test, either in a positive or negative way, and their best efforts are expended in reviling and criticizing the whole procedure. What, then, is the safe middle ground and how is this viewpoint to be attained so that a proper evaluation of the complement fixation test in syphilis can be made in connection with the diagnosis and treatment of this disease?

Let us seek primarily some of the causes for misunderstandings and disagreements between clinician and laboratory worker re-

*From the Department of Serology, Tucson, Clinical Laboratory. Read at the Thirty-fifth Annual Meeting of the Arizona State Medical Association, Globe, Arizona, April 26, 27, 28, 1926.

garding the true value of the Wassermann reaction. It will be found that they are due in the main to biologic and technical sources of error, a mutual understanding of which is necessary for the proper employment and interpretation of this essential and valuable test.

In the first place, the conception of biologic specificity, which was the basis of the original Wassermann test, still exerts an influence, consciously or subconsciously, upon the general medical mind. This is unfortunate inasmuch as the complement fixation test for syphilis, as practiced today, is not biologically specific. The antigen is not prepared from syphilitic material nor from the treponema pallidum, but is an extract of tissue lipoids from non-syphilitic tissue, while in all other complement fixation tests, the antigen must be derived directly from the microparasite or other protein causing the disease. Secondly, the reaction itself is dependent upon the peculiar nature of the so-called antibody, formed in serum or spinal fluid by syphilitic infection, which is endowed with the property of combining with, or fixing, complement in the presence of these lipoids of the antigen in the test tube. Or, in other words, the reaction is due to the physico-chemic properties of the globulins of the syphilitic serum which possess greater affinity for the colloid particles of the antigen than do the globulins of normal serum, with the absorption of complement in the combination. Thirdly, so far as is known, these lipotropic antibodies are the result of an interaction between the tissues and the invading spirochetae. Hence, it is obvious that the production of reacting bodies, collectively termed "reagin," is dependent upon the two factors, viz., (a) the activity of the spirochetes themselves together with their effect upon the tissues; (b) the ability of the tissues to react. Furthermore, the detection of the "reagin" when it is produced is directly dependent upon, (a) the amount which may be produced and (b) delicacy of the method employed to determine its presence. In the following discussion, keeping these basic principles well in mind will bring to a better understanding some of the misinterpretations which are the source of dissatisfaction alike to the physician and serologist.

1. The Occurrence of Negative Reactions in Syphilis. It must be admitted that in unquestionable cases of syphilis, negative reactions do sometimes occur and they may take place in patients then exhibiting active lesions or even follow, within a comparatively short period, a preceding positive report. These contradictory results are due either to a quiescent state of the spirochetae, in which their effects upon the tissues are reduced to a minimum, or to a lack of power on the part of the individual to react so as to produce antibodies in amounts susceptible of detection by the method of complement fixation employed. Such conditions obtain for instance in primary syphilis, in which stage the reaction may be negative until such time as the body cells are sufficiently stimulated to produce demonstrable amounts of "reagin," and likewise in latent syphilis, either congenital or acquired. A single negative reaction cannot therefore be taken to exclude syphilis in any suspicious case. It is fairly well authenticated that the ingestion of any considerable amount of alcohol about the time of a Wassermann test may temporarily convert a positive reaction into a doubtful or negative one, but this is a matter the control of which lies entirely within the province of the attending physician. In certain forms of neurosyphilis the Wassermann test upon the blood serum may yield a negative reaction while the cerebro-spinal fluid reacts positively. This apparent discrepancy is simply explained upon the basis of the particular location of spirochetal activity and the amounts of "reagin" under production. It must be freely granted that once in a while falsely negative reactions may be given because the technic itself is not sufficiently sensitive, but few will have the temerity to urge that it is not better to miss the occasional case of syphilis, which may after all be detected by other means, rather than fasten a falsely positive reaction upon the innocent individual. In the treated case of syphilis it must be emphasized that while the attainment of a serologic negative is a most laudable aim, yet its achievement in but a single instance is not sufficient evidence that a cure has been established and a series of examinations with negative results should precede any extended discontinuance of treatment. To sum it all up, the face value of a negative report is rightly to be considered only as a statement of failure to detect in the serum examined, at the time of examination, antibodies reacting with the antigen employed. It is applicable to the condition prevailing at the hour of examination only and bears no relation to previous conditions nor holds out promises for the future.

II. The Occurrence of Positive Reactions in Diseases Other Than Syphilis. Insomuch as the complement fixation test for syphilis is not biologically specific, the

question becomes pertinent as to whether the reaction possesses practical specificity and if the particular lipotropic antibodies are found in non-syphilitic conditions. At the present time it is recognized that positive Wassermann reactions may occur in a few diseases other than syphilis, but not at all to the extent that earlier observations would indicate. Frambesia, or yaws, is said to yield a uniformly positive result, but let it be noted, the causal micro-organism of this condition, the spirocheta pertenuis is morphologically indistinguishable from the spirocheta pallida, is biologically closely related to it and the same kind of lipotropic "reagin" is produced as in syphilis. It is entirely probable that the positive reactions which have been reported in relapsing fever and trypanosomiasis are due to the presence of similar antibodies. Leprosy, of the tuberous type, is a classical instance of a disease in which positive reactions were believed to occur with great frequency, but the investigations of later days have proven that the only lepers giving such results were syphilitic lepers. Malaria and scarlet fever furnish similar examples wherein supposed false positives were subsequently found by repeated serological tests, clinical symptoms or autopsy to have a definite basis in concomitant syphilitic infection. In other febrile or infectious states, such as pneumonia, malignant endocarditis, typhoid fever and jaundice, or with constitutional conditions, like diabetes and uremia, a positive complement fixation result, provided that syphilis can be ruled out, is rightly to be considered only as a transient secondary phenomenon, due to a disturbed colloid or lipoid balance in the serum, which by its infrequency of occurrence detracts in no wise from the general value of the test. False positive Wassermann reactions are alleged to occur in pulmonary tuberculosis, but it is my experience, in a locality where tuberculous "health seekers" form a considerable proportion of the citizenry, that results of that nature will be proven sooner or later by confessed history, symtomatology or x-ray findings to be due to a coexistent syphilis. The non-syphilitic pregnant woman may possibly show a temporary positive reaction from anticomplementary substances present in the serum near the parturient period, but it is much more frequently discovered that pregnancy has stimulated latent foci of syphilitic infection to activity thus yielding a positive result persisting for longer or shorter periods following confinement, and the reaction should be considered fully as dependable during these conditions as at other times. With Kolmer's quantitative technic, it is authoritatively stated that yaws is the only non-luetic condition so far reported as giving a false positive reaction. Hence in countries where frambesia or biologically similar spirochetal infections occur but rarely, or not at all, the practical specificity of the Wassermann test for syphilis would appear to be sufficiently established for every practical intent and purpose.

III. Variation in Reports Upon the Same Specimen by Different Laboratories. This occurrence is exceedingly vexing to the physician and very regrettable from the serological standpoint, but is rather to be expected occasionally than otherwise when the numerous modifications of technic used in different laboratories are considered, not to mention the human equation or individual variations in skill and experience. This brings to bear a very potent argument for the general adoption in all laboratories of a standardized method of preeminent and proven merit. Thanks to the monumental researches of Kolmer, a technic of that degree is available which not only is high. specific in a qualitative way, but by the employment of varying amounts of serum is delicately quantitative as well. This method is constantly gaining in favor among the better informed serologists, the only bar to its more universal adoption appearing to be the greater length of time required by over-night ice box incubation. This is scarcely a valid reason for the rejection of a superior means of diagnosis. The patient under suspicion or treatment for syphilis can be classed as an "emergency case" only by a considerable stretch of the imagination, and a few hours more or less in the announcement of the result of a blood test can make no essential difference either to him or to his medical attendant. Whether scheme of technic is used, however, for the actual setting up of the complement fixation test, there should be employed the new antigen evolved in Kolmer's experiments, the superlative value of which is unquestioned.

IV. Substitutes for the Wassermann Test. These consist of around a dozen precipitation or flocculation reactions which have been described in glowing terms in the literature of the past few years and have made a preemptive bid for a place in the serological sun. The Meinecke, Sachs-Georgi and Kahn tests, because of their claims of higher agreement with the Wassermann test, have received the most attention. The writer must confess his inability to secure consistently reliable results with

any of these tests. In my experience false negatives and spurious positives, as gauged by the Wassermann test, occur with far too great frequency even in the clear cut reactions, while the differentiation between doubtful negative results and the lesser degrees of positivity is a matter of extreme difficulty if not indeed somewhat susceptible of influence by the personal bias of the observer. That this difficulty in reading results is well-founded and far-spread can be proven in no more forcible fashion than by the fact that within the last few months no less than three different methods have made their appearance, designed for greater accuracy in reading the results of flocculation tests by means of the microscope. The Kahn test has received, however, recognition as the official test for syphilis by the Michigan Department of Health and by the United States Navy, largely upon the basis of economy of time, skill and material. It is an open question as to the extent to which parsimony in any of these factors should be allowed to enter into a medical diagnosis. The Health Committee of the League of Nations, after exhaustive investigation by a selected group of international serologists upon the comparative values of various flocculation tests and the Wassermann reaction, has declared as follows: "The flocculation tests cannot at present replace the Wassermann test." The weight of impartial and unprejudiced authority in this country is to the effect that flocculation or precipitation tests cannot be considered as displacing the complement fixation test in the serologic diagnosis of syphilis, although they may have definite value as "confirmatory" and "supplementary" tests or "corroborative checks" when used in conjunction with the Wassermann reaction.

In conclusion, the value of the Wassermann reaction in the diagnosis and treatment of syphilis cannot today be sincerely questioned if the variables of biologic factors and technical difficulties are well understaod. The Wassermann test has little value merely as a "Wassermann Test" irrespective of the method employed or by whom it is conducted. The physician should choose his laboratory or serologist with the same thoughtful care that is exercised in the selection of his medical, surgical, or x-ray consultant. He should know what particular method is being employed in his complement fixation test and be reasonably conversant with its limitations and potentialities. Greater confidence and cooperation between the clinician and the laboratory worker will result in an increase of efficiency upon the part of both, to the ultimate benefit of the patient.

DISCUSSION

DR. W. WARNER WATKINS, Phoenix (Opening):—I have just returned from the meetings at Dallas, and while there attended the annual session of the Association of Clinical Pathologists, who discussed this phase of laboratory work in one session; they emphasized that relation between physician and laboratory, which is too frequently forgotten, which is that the laboratory pathologist is a consultant and that his work is consultation work; that means that he is entitled to all information he may desire about the case being examined, and that his report, however it may be made to the clinician, is the OPINION of a medical consultant.

The necessary procedure of sending specimen only to the laboratoy, sometimes located at a distance from the clinician, frequently makes impossible any personal consultation between clinician and pathologist, but this does not alter the essential nature of the relation between them. For that reason, I do not entirely agree with the paper in the point that the physician should be conversant with the technic of the laboratory test. If I were a practicing physician and referred a patient to an ophthalmologist for examination and report to me on certain points, I would not seek to know, or care to know, what style ophthalmoscope he uses, whether he looks with the naked eye, or through a lens, whether he dilated the pupil or not; what I would be seeking is that particular man's judgment as to what he sees and what it means. When specimen is referred to a laboratory, it should not be so material to the clinician what the technic of the test is, as what the personnel of the laboratory is. It is just as easily possible for an unreliable laboratory pathologist to get unreliable results from the most perfect technic as it is for the poor surgeon to botch up Rodman's operation on the breast. It is not whether a laboratory uses Kolmer's standardized technic or not that matters, but whether the laboratory exercises the "laboratory conscience" which corresponds to the "surgical conscience" that we hear so much about these days.

It is impossible for the physician to have this confidence in a laboratory with whose personnel he is unacquainted, even by reputation. Some years ago most of the laboratory work from Arizona went to California to a laboratory which did not have a physician on the staff in any capacity. This condition is gradually disappearing, because the American College of Surgeons now recognizes that clinical laboratory work is medical consultation work and they specify that such work done in any approved hospital must be supervised by a director who is medically trained as well as pathologically trained.

If the physician will remember that the appearance of the blood change producing a positive Wassermann reaction is the first and most constant secondary symptom of syphilis, the interpretation will be easier. It is an eruption into the blood of substances of a colloidal nature, comparable to the eruption into the skin of the spirochetae which produce skin evidences. Just as the skin eruption may vary, may be absent, or may come and go, so the blood eruption may vary. Do not regard the Wassermann reaction as a TEST for syphilis, but as the search by a laboratory method for blood changes which represent the most frequent and constant secondary **SYMPTOM** of syphilis. If we, then, at times in other diseases find a blood change which resembles that produced by

syphilis, should we then say that the test is worthless or the laboratory unreliable which finds such a blood change?

I do not believe that tuberculosis will give a positive Wassermann test to the degree which we would regard as conclusive. In our laboratory we have now run more than ten thousand complement fixation tests for tuberculosis, and every one of them has had a parallel Wassermann reaction, and we have so far never had a clinician prove to us that a completely positive Wassermann reaction has been obtained on a non-syphilitic. On the other hand, we have on scores of tuberculous patients shown positive reactions, where such reaction was the first suggestion that the physician had that his patient was syphilitic, and the subsequent inquiry or history proved the existence of syphilis. We are positively convinced that tuberculosis, not complicated by syphilis, will not give a four plus positive Wassermann reaction. I question whether a four plus positive will be given by measles or scarlet fever, though we have not tested enough of such patients to be positive of this.

We hear of instances where two laboratories have given very dissimilar reports on blood from the same patient, and one doctor has told me of a case where he divided a specimen into two parts and sent it through a laboratory as two specimens; one was negative and one was positive. Such a result, of course, would call for checking along the line of technic and handling of specimens. The proper thing for the physician to do in such a case would be to take the matter up frankly with the laboratory and give them an opportunity to correct any internal technical errors. I once sent a patient to a first class clinician in Phoenix, who reported that she had tuberculosis of the entire upper right lobe; the patient desired a check on this examination and was sent to another physician, who reported the right lung normal but extensive rales and involvement of the upper left lobe. I then became curious and x-rayed the chest and could find no involvement in either lung; though subsequent developments proved the x-ray findings correct, I have lost none of my confidence in either of these doctors and would just as quickly send them other patients. I expect the same tolerance for human fallibilities in my own work. One of the prominent surgeons of Arizona for several years lost his confidence in our laboratory, because I once diagnosed as sarcoma a tumor of the thigh which proved to be inflammatory. He has changed his ideas of late years since the American College of Surgeons registry of bone tumors have reported on the extreme difficulties involved in correctly diagnosing such tumors. In fact, Dr. Ewing reports on a quite similar case to this one, in which four of the most eminent pathologists of the country gave four different diagnoses—two malignant and two benign. Dr. Ewing and his own associate could not agree on whether the tumor of the thigh was malignant or not, after it was removed and examined.

I want to reiterate the statement that in having Wassermann tests or any other laboratory work done, the first thing for the physician to do is to choose the laboratory consultant whose opinion he would like best to have, and give to that laboratory worker the same consideration as you would any other consultant.

No one has a keener interest in making the laboratory reaction as exact and reliable as humanly possible than the laboratory pathologist himself. He is in much better position to know what technic or test will give the best results than the physician is, and whenever refinements in technic appear that make laboratory work more exact and reliable, the laboratory will be found utilizing those tests. For example, the Kahn reaction is attracting considerable attention just now, having been adopted by the Navy and by the Michigan State Board of Health. The Kahn reaction is simple to look at, but is subject to great variation in interpretation, actually requiring a keener skill in reading than does the Wassermann. In our laboratory, seeking always to make use of any refinement which will aid in more exact work, we have been running Kahn tests on all blood specimens sent for Wassermann, for many months now. We simply are checking our own technic on Wassermann by using the Kahn precipitation as a control. Also we use the Kolmer titration on all positive reactions stronger than four plus. We do not report either of these to the doctors unless they desire it, but they are being run all the time.

Again I say, leave the technic to the laboratory; if it is worthy of your trust, it will have the best to be had. If the reported result is contrary to the clinical picture, take the matter up frankly with the laboratory. You may be surprised in getting some valuable suggestions.

DR. H. M. PURCELL, Phoenix, Ariz.: I am of the opinion that tuberculosis may cause a positive Wassermann reaction but not to the degree that syphilis will produce it. I had a case brought to me not long ago by a doctor who had had it referred to him from the east. The patient had a lung condition on which the diagnosis of syphilis had been made on the Wassermann alone and on arriving in Phoenix the treatment was continued with mercury intravenously. The doctor became doubtful of the cause of the lung condition and wondered if the fellow really had syphilis, so had a Wassermann taken which showed ten plus by the Kolmer technic and had the chest x-rayed. While the x-ray showed extensive involvement of the lungs, the nature of the involvement was doubtful. The man, however, had active tuberculosis with a positive sputum. As the Wassermann was ten plus, it seemed to me a pretty strong Wassermann, yet the case gave positively no history or physical findings of syphilis. He was a young married man, had lived with his wife for three years and yet her blood Wassermann was negative. So I believe that in some cases tuberculosis will give a positive Wassermann reaction. I do not know, however, whether or not this is due to the tuberculosis or to the accompanying fever. I saw a case while in the service of a typhoid patient whose fever was running 103 at the time. Wassermann was made which came back four plus. After the patient recovered, another Wassermann was done which came back negative. I believe that the fever brought out the positive result and think that it in some way affects the blood so as to bring this about.

As to the matter of leaving the technic to the laboratory, I believe it is all right to do so if you have faith in your laboratory. I think we should know as to whether or not the Wassermann method used is reliable. While an intern, I and another intern had the opportunity to test out the so-called Noguchi test—all the materials for which could be purchased from one of the large biological houses and which test could be made quickly in the office. This test was used by a leading doctor in Memphis at the time, but we proved to our satisfaction that the test so made is worthless. We went farther and had the doctor above mentioned test several bloods that were from undoubted positive or negative cases and with the same unreliable results we had obtained ourselves.

Personally, I think the Kolmer method is the

best because it tells us how positive the reaction is. The Wassermann, as Dr. Newcomb said, is the most important test we have in syphilis, and I think we ought to know about what the laboratory is doing, for example, the kind of antigen they use, as certainly the old alcoholic antigen is not nearly so sensitive as the fortified antigen and it may be that a four plus with the fortified antigen would not be over a one or two plus with the alcoholic antigen. Therefore, I think we ought to know something about the laboratory—and the method it is using.

DR. P. B. NEWCOMB, Tucson, Ariz. (closing): I did not mean to give the impression that the physician should know all the details of the Wassermann technic any more than the laboratory worker should know the details of a gastro-enterostomy—simply that he should know what technic was being employed, and its standing, as Dr. Purcell has emphasized.

In regard to the matter of the relation of the pathologist and the physician, I do not think that subject can be emphasized too much. He should be regarded more as a consultant. The laboratory man is always mighty glad when the doctor will bring in his specimens and tell him about the case, instead of sending them to him without any of the history. It may help him materially in a one-plus reaction to know about the case, and you can get a much more intelligent opinion as to the value of the test if you consult the pathologist. How often we find some physician who takes an entirely hostile attitude towards the laboratory. He says "I am not going to tell that man anything about this case, I am going to see what he has to say about it and I bet I will catch that guy napping." Now you would not think of withholding information from any other kind of a consultant. An attitude like that is entirely wrong and not to the best interests of anybody.

As regards the Kahn reaction, it has the same basis probably as the Wassermann test—an upset of the colloid blood balance somewhere which they attempt to read by a mere precipitation in a colorless fluid. The use of the "indicator" furnished by the hemolytic system is absent, ranging from the bright red clear solution of a negative to the pinkish opaque of a four plus. I have not much faith in the reliability of the Kahn reaction or similar precipitation tests for the very reason that they utterly lack this "indicator" of the hemolytic system and are too much subject to the personal equation in reading results.

What Dr. Purcell said in regard to fevers, I tried to make plain in my paper. I do not believe that tuberculosis alone, without fever, can be considered as giving a positive complement fixation test. I had one case which bothered me a great deal. There was a four plus reaction, yet a diagnosis of tuberculosis had been made and history of syphilis was positively denied. The case bothered me very much for about a year, when, about two weeks before the man's death, he told me he had a confession to make, that he had lied to me, as he had had syphilis about ten years before. That was the reason for his four plus Wassermann.

RADIANT ENERGY IN TREATING ACCESSIBLE MALIGNANCY ABOUT THE HEAD AND FACE *

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By accessible malignancy is meant a lesion located on the skin or mucous surface, where there is no mechanical difficulty in treating the involved area.

By radiant energy is meant the energy of electromagnetic waves, which are considered to be oscillations in that medium which fills all space and which, for want of a more descriptive term, we call "ether." All these waves travel transversely at the same rate of speed, which is the speed of light (300,000 KM. per second), their physical differences depending on their varying wave lengths and the frequency of their vertical oscillations.

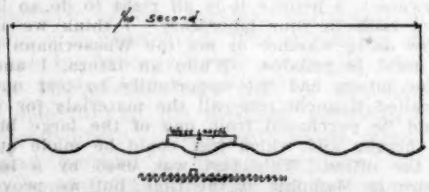

Fig. 1. Varying Wave Lengths.

The wave length is the distance from the crest of one wave to a corresponding point on the crest of the next wave (Fig. 1); this distance may be enormous, as in the alternating current waves or Hertzian waves, or may be inconceivably small, as in the gamma rays of radium or in x-rays. In order

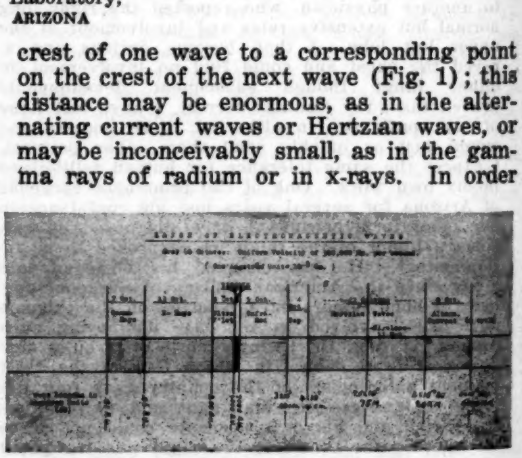

Fig. 2. Diagram of Electro-Magnetic Spectrum.

to fix the physical nature of radiant energy clearly in mind, we will look at the scale of electromagnetic waves. Using the range of visible light as a unit and calling it one octave, the electromagnetic waves run through a scale of more than eighty octaves (Fig. 2).

Read before the Arizona State Medical Association at its Annual Meeting, in Golbe, Arizona, April 26 to 28, 1926.

The unit of measurement for the short waves is the Angstrom Unit (AU), which is one hundred millionth of a centimeter or one ten thousandth of a micron. For the longer waves we usually use more ordinary terms. The alternating wave currents occupy about nine octaves and vary in wave length from three miles to more than three thousand miles. Next to these come the Hertzian waves, occupying twenty-two octaves and varying in length from 20,000 meters down to .4 of a centimeter; this group includes the wireless waves of various lengths, down to 75 meters. Between the shortest of the known Hertzian waves and the next known waves, there is a gap of four octaves not yet explored by physicists; the wave lengths in this space range from 40 million to three million AU. At this point in the scale we enter the field of the waves whose energy is accompanied by heat production, known as the infra-red waves. They cover a range of nine octaves and vary in length from 3,000,000 AU to 7000 AU. The wave lengths between 7000 AU and 4000 AU impress themselves on the eye as visible light. Beyond 4000 AU the waves become invisible again and through a range of four octaves from 4000 AU to 200 AU, they are known as ultra-violet waves. Beginning inside the limits of the ultraviolet, at 500 AU and ranging through fifteen octaves down to .06 AU are the waves produced by electrical discharges in vacuum tubes, chief of which are the x-rays. The waves generated by the explosion of radium atoms overlap the x-rays, beginning about 1.4 AU and extending through seven octaves to .01 AU.

IONIZATION

In order to appreciate the effects of radiant energy on living tissues, we need to keep in mind the meaning of the term "ionization." Let us make it as simple as possible. The atom (Fig. 3) as we now understand it, is composed of one or more nuclei holding in close union positively charged electrical units, called ions or electrons. Within the atom and rotating about the central nucleus are negatively charged ions or electrons, corresponding in number to and exactly neutralizing the positively charged electrons in the center.

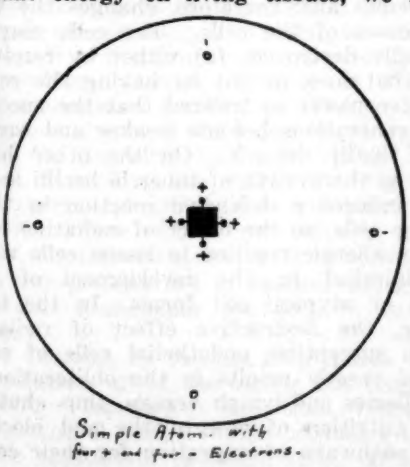

Fig. 3. Diagram of Simple Atom.

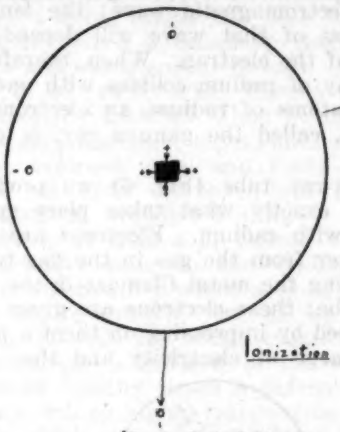

Fig. 4. Ionized Atom.

When a substance becomes ionized (Fig. 4) it does so by reason of the detachment of one or more of the negative electrons which go free as negative charges, leaving the remainder of the atom positively charged by reason of its excess of positive electrons. This, of course, alters the inner structure of the atom.

Let us now see what happens when radium undergoes spontaneous disintegration.

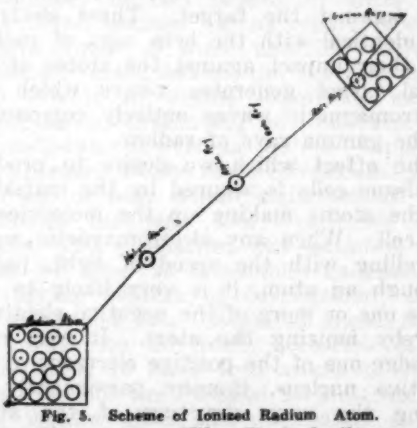

Fig. 5. Scheme of Ionized Radium Atom.

The radium atom (Fig. 5) is built up of a definite number of helium atoms, very much as a house is built out of bricks. When the radium atom disintegrates, one of the helium atoms is cast loose and ex-

plodes. In the explosion it casts off two negative electrons. The positively charged residue of the helium atom is the alpha ray of radium. The negative electrons cast off at great velocity are the beta rays of radium, the only difference between them and the ordinary ions or electrons being the speed given them by the force of the explosion of the atom. When any fast-travelling electron comes in contact with an atom of any substance, there is generated an electromagnetic wave; the length or shortness of that wave will depend on the speed of the electron. When, therefore, the beta ray of radium collides with one of the other atoms of radium, an electromagnetic wave, called the gamma ray, is generated.

In the x-ray tube (Fig. 6) we produce artificially exactly what takes place spontaneously with radium. Electrons are liberated either from the gas in the gas tube, or by heating the metal filament in the hot cathode tube; these electrons are given the desired speed by impressing on them a high voltage charge of electricity and they are

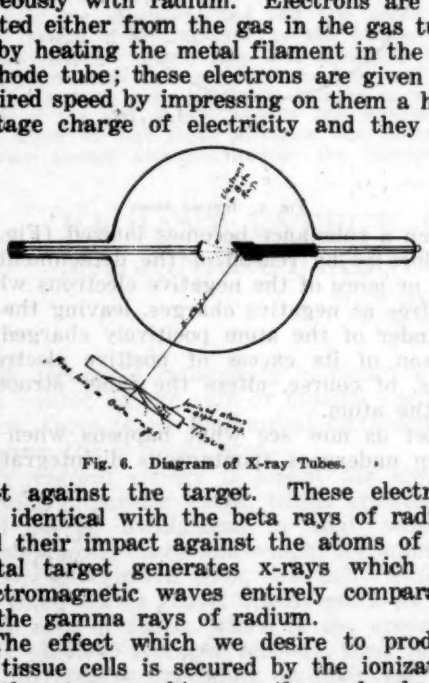

Fig. 6. Diagram of X-ray Tubes.

shot against the target. These electrons are identical with the beta rays of radium and their impact against the atoms of the metal target generates x-rays which are electromagnetic waves entirely comparable to the gamma rays of radium.

The effect which we desire to produce on tissue cells is secured by the ionization of the atoms making up the molecules of the cell. When any electromagnetic wave, travelling with the speed of light, passes through an atom, it is very likely to displace one or more of the negative electrons, thereby ionizing the atom. It may even dislodge one of the positive electrons of the positive nucleus, thereby permanently altering the very structure of the atom. Since the waves must be short enough to pass between the atoms in order to penetrate, and to pass through the atom in order to dislodge its electrons, it is obvious that only the very short waves can be utilized for this purpose. One micron is equal to 10,000 AU, and the diameter of the helium atom is 2 AU, and that of the atoms of oxygen and hydrogen is 3 AU. While some of the ultraviolet waves are capable of ionizing gases and of ionizing surface tissue cells, only the waves of one AU in length or shorter are capable of penetrating, of entering the atoms and dislodging ions to any degree.

SOURCES OF RADIANT ENERGY

The radiant energy used, at the present time, in treating disease extends from the shorter infrared to the gamma rays of radium. The sources of this energy are (1) sunlight; (2) artificial light; (3) x-rays; (4) radium.

The radiant energy of the sun contains waves up to 12,000 AU in the infrared and down to about 2000 AU in the ultraviolet, being visible to the human eye as light between 7000 AU and 4000 AU.

Of the artificial lights, the incandescent filament lamps furnish chiefly infrared waves, in addition to visible light.

The carbon arc lamp has a spectrum which spreads out over several octaves and closely approximates sunlight. A chart of its waves shows them to be rich in ultraviolet just beyond the range of visibility, in blue light rays, and to contain many infrared waves.

The mercury vapor arc develops waves ranging from 2000 AU up to 6000 AU, being heaviest in the long ultraviolet and violet, and has little or no red rays.

The sources of x-rays and radium rays we have already discussed.

BIOLOGIC EFFECTS

The tearing loose of the electrons from the atoms of tissue cell molecules, alters the essential chemical structure of those molecules and, therefore, changes the vital processes of the cells. The cells may be actually destroyed, (a) either by receiving a lethal dose, or (b) by having the reproductive power so lowered that the succeeding generations become weaker and weaker and finally die off. On the other hand, just as the growth of tubercle bacilli in tissue induces a defensive reaction in those tissue cells, so the effect of radiation leads to an allergic reaction in tissue cells which is inimical to the development of foreign or atypical cell forms. In the third place, the destructive effect of radiation upon susceptible endothelial cells of small blood vessels results in the obliteration of capillaries and lymph vessels, thus shutting off nutrition of newgrowths and blocking the pathways of migration for their cells.

Up to the present time, we have used

chiefly the gamma rays of radium and the shorter wave lengths of x-ray in the destruction and treatment of malignancy. We should not, however, overlook, in passing, two hardly explored fields of radiation which hold marvellous possibilities.

In the use of radium we have learned that the beta rays, wherever they can be applied, are much more destructive than the gamma rays; that is one of the reasons for the use of radium emanation. When the radium plaque, which supplies beta rays, is applied to a very superficial skin lesion, the healing is very prompt. Considerable experimental work is being conducted at present on the use of the beta rays generated by x-ray. Beta rays can be secured by ionizing any substance with x-rays or gamma rays. The electrons displaced from the ionized atoms are beta rays. Therefore, when x-rays are sent through a block of beeswax, for example, beta rays will be given off by the wax from all sides and these may be collected off at one side and introduced into superficial growths on the body. Furthermore, Dr. Coolidge has recently announced that he has succeeded in passing beta rays through the side of the x-ray tube and collecting them some distance away, out of range of the x-rays of the tube. Such primary beta rays from the x-ray tube are very powerful, producing destructive ulceration of the skin in a few seconds application. A beta ray generator of this sort would be comparable to a gigantic mass of radium in its effect on living tissue.

The second unexplored field is the use of the longer wave length rays in changing the essential metabolic processes of the body. The whole tendency in the study of cancer today is in the direction of its being a systemic disease, with local manifestations. We, therefore, will soon be facing the problem of using systemic as well as local methods of treatment. The powerful alterative effects of the longer wave lengths found in the ultraviolet and visible light scales, as well as the long wave length x-rays, certainly will have their place and the importance of this we can only guess at, in our present stage of knowledge.

In our present use of radiant energy in accessible malignancy, we seek to do two things:

1. Destroy, by the use of a caustic dose of radiation, all of the visible and palpable growth. This dose is such that, if applied to the normal skin, it would produce a third degree reaction or radiation ulcer. It is, of course, essential to protect the normal surrounding skin or mucous membrane from this dose of radiation.

2. Induce a defensive reaction in the zone of normal tissue surrounding the visible or palpable growth. We are coming to attach more and more significance to the tissue reactions of the normal tissues, in stopping the extension of cancer growth and starving out the cancer cells. If a skin epithelioma is excised and the surrounding area radiated, we are not attempting to deliver a lethal cancer cell dose to this area, but to induce a defensive reaction in the skin and subcutaneous tissues. We are trying to do exactly what Murphy does at the Rockefeller Institute when he radiates normal skin and then transplants cancer upon that radiated area, and finds the cancer will not grow, while it will grow when grafted on unradiated skin.

When we treat a lip cancer, we deliver a destructive dose to the visible lesion, a dose which will produce a sloughing out of the entire growth, just as we would destroy it with any other caustic. In addition, there is induced in the surrounding zone of healthy tissue a defensive reaction which will be highly resistant to any cancer cells which may have wandered beyond the visible growth. On the same principle, we radiate the glandular areas, not for actual destruction of any cancer nests in the glands, because the dose deliverable through the skin is not sufficient for this, but for the production of a tissue reaction which will cause the cancer cells to be walled in and starved out.

RESULTS IN ACCESSIBLE MALIGNANCY

We have chosen to deal with accessible malignancy in this paper, for three reasons: first, because we can report excellent results in most of these, and that is always a pleasant task; second, the study of radiation effects in visible lesions is easier; third, an understanding of the principles of radiation in visible lesions simplifies the approach to the more complicated management of deep seated malignancies.

During the past four years we have treated and discharged 124 patients with what we class as accessible malignancies, of varying degrees of development, about the head and face. Some of these, as in the mouth, are not really accessible in the sense that we have free access to them. Mouth lesions are included to illustrate the poor results which are due partly to the inability to apply radiation as desired.

Of these 124 patients, 112 of them presented lesions on the skin or mucous surface, so situated that there was no mechanical difficulty in applying radiation as de-

sired. The other twelve were the mouth lesions.

The failure to secure results in mouth lesions is due partly to the inability to apply radiation as desired and partly to the tendency to metastasize early into inaccessible areas or to extend to nearby bone. Only three of twelve mouth malignancies have healed with any hope of remaining healed. Two of these were early tongue lesions, first destroyed by electrocoagulation and then treated with radium; the third was a growth involving the gum in the region of lower incisor teeth, also treated by electrocoagulation and radium. Of the remaining nine, the following brief resume is interesting:

Case 1. Involvement of cheek and alveolus far back; healing complete but final result very dubious.

Case 2. Squamous cell carcinoma inside of cheek. Healed but recurred in deeper tissues, with death following.

Case 3. Carcinoma of tongue, with radium and x-ray. No result, death soon occurring.

Case 4. Involvement inside of cheek and gums. No report after treatment, but there is no ground to hope for more than temporary improvement.

Case 5. Recurrence following treatment elsewhere; treated by radium and x-ray but no reason to hope for permanent result.

Case 6. Well advanced carcinoma of alveolus and cheek of many years standing. Would not heal.

Case 7. Advanced carcinoma of tongue. Electrocoagulation and x-ray. Has recurred and is hopeless.

Case 8. Carcinoma of alveolus and inside of cheek. Electrocoagulation, radium and x-ray. Has extended to bone and deeper tissues and is hopeless.

Case 9. Recurrence inside of cheek after treatment elsewhere. Has healed twice under treatment, but recurs, and has been given up as hopeless, though stationary at present.

The 112 accessible skin and mucous membrane lesions about the head were distributed as follows:

Cheek	28
Lower Lip	25
Nose	21
Forehead	10
Ear	6
Upper Lip	5
Neck	8
Eyelids	6
Scalp	3

The majority of the skin lesions were of the basal cell type which, as is well known, is of low grade malignancy and should yield to any method of treatment which thoroughly removes or destroys it. Squamous or pigmented growths are much more malignant.

There were eighty-two epitheliomas of the skin; of these we have no final report on seventeen. Since our business department usually charges and collects a lump sum for treatment and advises the patient that the first charge covers subsequent observation and treatment, when required, the failure of these seventeen to report means, we believe, that they have healed and remained healed. Of the sixty-five patients in this group who have reported, only four have failed to show entire healing of the lesions treated. These four were as follows:

Case 1. Bilateral lesion under the ears. One side healed entirely and has remained healed. The other side, after nearly healing, recurred and extended deeper and has become inaccessible to destructive radiation. Probably will not heal.

Case 2. Extensive ulcerating lesion of chin and submental region. Has healed but shows tendency to recur in small nodules.

Case 3. Nasal lesion which has invaded the cartilage after healing on surface. Not now accessible to destructive radiation.

Case 4. A lesion coming as a recurrent growth after radiation several years ago. Involved the tissues behind the ear and led down to bone. Hardly an accessible lesion at the time we first saw it.

Four patients were radiated post-operatively, following removal of local growth by knife. In three of these, there had been recurrence in the scar line before operative wound had healed. In all three, the recurrences disappeared under radiation and have remained healed.

So far as our observation goes, destruction of the lesions of this type is best accomplished by radiation. When lesions supposedly thoroughly excised recur immediately in the operative wound and then yield quickly to radiation, we can rightly assume that radiation without the excision would have been just as efficacious.

In the four cases where the results are disappointing, complete surgical removal was not thought possible in any one. When the malignancy, after destruction by radiation of the visible growth, breaks through the zone of resistance around the lesion and invades deeper layers, we can then, by repeated radiations, try to establish wider zones of resistance, in the hope that a succession of these will finally and permanently halt the local extension and, by sealing lymphatics and capillaries, prevent metastases.

The twenty-five cancers of the lower lip were in all stages of development. We do not wish to start any controversy over the comparative efficacy of radiation and surgical removal in cancer of the lower lip. We treat the cases referred to us by other physicians and surgeons, and we naturally have formed our opinion about the value of radiation treatment, and that opinion is entirely favorable. Of the twenty-five lower

lip malignancies treated by us, we have record of four only in whom the treatment failed to bring about complete disappearance of the lesion. Of five patients we have no final record, but consider that the failure to report augurs well for the patient and treatment, for reasons previously stated. Of the sixteen lip lesions remaining healed to date, three were removed by local excision and one by electrocoagulation prior to treatment. The other twelve, various degrees of lip cancer, have completely healed under radium and x-ray treatment, and glandular metastases have so far not occurred. The four failures are no reflection on the treatment:

Case 1. Postoperative recurrence, coming to us in stage of extensive disease, infected with maggots, and with neck glands all involved. Palliative treatment only, with death after several months.

Case 2. Extensive involvement of lip, inside of cheek and glands of neck. Treatment palliative only. Death soon after.

Case 3. Lip lesion with metastases in skin over chin, considered inoperable by surgeon. Lip lesion entirely disappeared, but metastasis extended. Still living, but hopeless.

Case 4. Non-cooperating patient who would not come for treatment and observation when told, and who was finally operated after recurrence following incomplete treatment.

Our observation of lip lesions leads us to make the following comments:

1. If there is to be surgical excision, it should be complete, including the glandular drainage tissues.

2. Local excision of the lip lesion or destruction of it by electrocoagulation, in small and medium size cancer, offers no advantage over radium or x-ray. Any of these will dispose of the local lesion.

3. Recurrence, if it takes place, will be in the glands, and both theoretically and practically, disposal of the local lesion on the lip by radiation, in preference to V-shaped excision or electrocoagulation, is more likely to prevent such glandular recurrence.

If the glands are not to be removed, there is no value in removing the local lesion surgically and then radiating the glands; this procedure has no advantage whatever over handling both the local lesion and the glands by radiation.

Malignancies, other than epitheliomas and carcinomas, about the head, are not usually in the accessible class. The list includes one sarcoma of the scalp which was very resistant and when last seen by us had not healed; an angiosarcoma of the scalp, in an infant, which yielded very satisfactorily to destructive dose of radium and was healed when last seen; three hemangiomas, one above the eye in a baby, one on the cheek in a small child, and one on the upper lip in a high school girl, have all yielded to radium. We prefer to attempt the destruction of almost any sort of lesion in preference to a birth-mark in a baby, because destructive effect is required and this means scarring and sometimes infection.

This report does not include many cases still under treatment and observation, scattered over the state. Nor does it include malignancies within the cranium, in the orbit, nose, sinuses, throat, or deep-seated lesions anywhere.

This paper does not discuss the technic of applying radiant energy. The technic varies with the type of lesion, with the location, with the individual, and with the circumstances. In some patients who live nearby and can come easily to the laboratory, we frequently prefer to give repeated doses of x-ray, while a patient with the same lesion who can be in Phoenix for only a day or two, will be given a destructive dose of radium in one application and then allowed to return home, with advice to report to the referring physician after a month or two, for observation. Most small, localized, readily accessible lesions are treated with radium, but we have no hesitation in changing from radium to x-ray and vice versa, and often use both on the same lesion.

The chief purpose of this paper is to present proof that radiation is an acceptable, if not the preferable, treatment for all accessible malignancies anywhere, but especially those about the head and face.

THE PROBLEM OF TUBERCULOSIS AMONG THE INDIGENT AND IN CHILDREN IN HEALTH CENTERS*

CHAS. O. GIESE, M. D.
COLORADO SPRINGS, COLORADO

Wherever curative qualities are supposed to exist in nature, health seekers will congregate. For hundreds of years medicinal springs have attracted the sick who sought health by bathing in, or drinking, the bitter waters. The old European resorts, Bath,

*Public address at High School Auditorium, Albuquerque, New Mexico, May, 1926, 8 p. m., during Forty-fourth Annual Meeting of the New Mexico Medical Society.

Carlsbad and Baden-Baden, and the younger United States places, like Saratoga Springs, New York; Hot Springs, Arkansas; and French Lick, Indiana, are only a few of the world famous places.

A gradual growth in the belief that climate influenced recovery from tuberculosis developed long before the discovery of the tubercle bacillus. So it was natural that as soon as the high, dry, arid section of the United States, the Rocky Mountain plateau, began to be settled, the long tedious westward trek of the tuberculous began. Many oxen and their sick drivers died on the plains, but a few reached their goal. Naturally, one cure out of many attempts meant the spreading of the glad tidings in the East. Therefore, long before Chambers of Commerce existed, tuberculous folk were coming West "to chase the cure."

It was also early recognized that tuberculosis differs from other diseases in that "chasing the cure" must extend over a long period of time, so those who come west usually expect to remain here for a considerable period. The poor as well as the rich seek health, and as small funds last only a short time, many soon become indigent. The incidence of tuberculosis is greatest among early adults, so the great majority coming to health resorts either bring small children, or children are born to these families later. Thus, not only the indigent consumptive, but his family, become citizens of the West.

To add to the problem, the part of the country enjoying the greatest reputation for curing tuberculosis is a sparsely settled section, which has only recently organized to cope with social problems as they are handled in more populous sections. Probably inspired by propaganda to keep sick people at home, the cities, communities and corporations of the semi-arid West have raised considerable sums of money with which, through medical magazines, lay press and even the daily papers, they are inviting health seekers "to stay where sunshine spends the winter", to come "to the heart of the well country", "to visit America's playground, the land of mountain and plain." Such advertising brings results. People with and without money respond, bringing increased responsibilities to the advertising communities. If the poor come, something must be done for them.

National sanatoria also add to the burden. The establishment of these institutions has by no means proved an unmixed blessing. Each institution of this nature adds to the indigent problem. One city harboring the greatest number of national sanatoria has decided, through its investigating committee, to discourage the building of any more.

Such is the indigent tuberculosis problem in the West. What can we do? What can a State Tuberculosis Association do? I wish to speak particularly of our Colorado Association, and our own local Colorado Springs work, as I am most familiar with them. I do by no means wish to overlook the splendid work of our other local societies, especially the one in Denver, which is doing most outstanding educational and relief work.

The Colorado Tuberculosis Association, during 1925, gave intensive health education service in six counties, the time given varying from one to three months. As an illustration it might be noted that in Adams County, in close proximity to Fitzsimmons General Hospital, twenty percent of the children in the grade school were tuberculosis contact cases. The State Society has also held children's clinics in all places where a large number of contact cases were shown to be present. Clinics were carried on largely through the co-operation and free services of local physicians. In addition, the Tuberculosis Association is one of six agencies which participate in a traveling clinic to carry on the Sheppard-Towner work in Colorado. The University of Colorado, the Child Welfare Bureau, The State Dental Association, The State Psychopathic Hospital, The State Board of Health, and the Colorado Tuberculosis Association make up the traveling clinic.

From January, 1925, to April, 1926, ten clinics were held with 5835 children examined in forty-three towns of seventeen counties. Thirty-seven percent of the children were found to be seriously malnourished. Follow up work is done by the Child Welfare Bureau and local nurses wherever available. A series of health lectures on health education, supplemented by exhibits, was given to 918 teachers at summer institutes. The State Association will also cooperate with Dr. Glenadine Snow to work out a health education program for the teachers in the training school at Greeley. It is expected that this course will be incorporated as a regular part of the curriculum. In this fashion, then, the Colorado Tuberculosis Association sponsors a progressive educational campaign to fight tuberculosis.

Colorado Springs and El Paso County spend $100,000 annually to fight the disease, $40,00 coming from the County Poor

Farm, and $60,000 from various social agencies in the Community Chest.

Sunnyrest Sanatorium, with a budget of $31,000, $8,000 of which comes from the Chest, has a capacity of forty-two beds, and is under the direction of a local board, and all medical care is donated. Those who can, pay for their care, but no one knows what another pays, so free patients receive the same consideration as the rest. For instance, one very sick man, a former Woodmen patient, whose total income was $12 a month, stayed fourteen months at Sunnyrest, paying $11 a month. He is now self supporting, and hopes in time to recompensate the sanatorium for its services.

A number of organizations devote all their time to children. As we have no children's hospital, tuberculous children are a problem. Good care, however, is taken of the under privileged and under nourished child in the Day Nursery, the Nutrition Camp and the Well Baby Clinic. The Day Nursery was founded in 1897, and has grown steadily ever since. In 1924 they moved into a beautiful new building, built and given by a philanthropic Colorado woman. At present they care for nine day children and forty-two residents, whose parents pay $7.50 per month, which represents only a small part of the actual cost of their care, the Community Chest making up the deficit. As a rule tuberculosis is present in sixty percent of the homes from which these children come.

The Nutrition Camp also is doing a splendid work. The initial cost of the building was raised in 1923 by a bazaar, and since then it has been supported by individual subscriptions and the Junior League. Up to the present day, eighty-eight children between six and twelve years of age have been cared for. They have been ten to twenty-two percent under weight. The children are given a thorough examination before admission, and no tuberculous children are accepted. Tonsillectomies, and other corrections are performed if necessary. The day at the Camp is divided between rest, half a day of school, sun-baths, play and sleep. The results are startling. Every child that stays long enough comes up to his normal weight. Fifty-five have done this. For various reasons, twenty-nine were obliged to leave after a few weeks stay, when parents left the city, were lonely, or needed the children to help with the house work. We are, however, convinced that every child can be brought up to normal weight provided no physical defect prevents.

The Well Baby Clinic under the auspices of the Child Welfare Bureau is another agency engaged in preventive work. Two pediatrists, aided by the visiting nurses, hold two clinics a week for babies of all ages, from two weeks old up. All services are given free. Ten hundred and fifteen babies attended the clinic in 1925. The result has been that one-third more of these babies are saved every year than Colorado Springs saves as a whole, for statistics show that sixty-seven out of each thousand Colorado Springs babies die, while only forty-three out of each thousand V. N. A. and clinic babies die. These figures show that this work pays.

The Colorado Springs Tuberculosis Association is interested in two phases of the indigent problem; the necessary medical care for the sick, and health education work among children. The free clinic, which meets three mornings a week, was started in 1919. Ten doctors give their services one morning a week, and laboratory and x-ray work is done free in two of the doctors' laboratories. Since the first year of the clinic both the registration and attendance have doubled. In 1925 the total attendance on 151 clinic days was 1061; 265 new patients registered during the year; 120 x-rays and 156 laboratory tests were made, and 259 prescriptions given free of and 259 prescriptions were given free of charge. There were 48 patients referred to specialists. The Visiting Nurse Association made 530 nursing visits, the Associated Charities 268 social service visits, and the Clinic director 37. Hospital care was secured for 17 patients, and 4 were returned home.

The Association is especially concerned with the educational work in the rural schools of the county. In 1921 the Modern Health Crusade was inaugurated in one of the most progressive schools by the rural worker. It was soon found that establishment of good health habits was only a part of the problem. Through the interest and co-operation of twelve Colorado Springs physicians, a thorough physical examination was offered to every rural child in El Paso County. The rural worker of the Association weighs and measures the children, obtains the co-operation of the parents, teachers and children, and arranges for the clinic. One mornnig a week during the fall months the twelve physicians drive out into the country to a consolidated school where about 150 children have congregated from the neighboring one-room schools.

The rooms are so arranged that each child passes through the hands of six men, a surgeon, an internist, laryngologist, ophthalmologist, dentist and neurologist. A checker for each doctor records on the examination blank the defects found and the recommendations made. The parents are urged to accompany their children, so consultations between doctors and parents frequently occur. A follow up letter about each child is sent to the parents soon after the examination, and they are urged to consult their family physician about the discovered defects. As a result more and more corrections are being made each year. It has been pioneer work, for a yearly examination and correction of defects was a new idea to the ranchers, and we had to prove the necessity and value of these things.

During 1924-1925, from the examination of 1660 children, the following statistics were obtained:

7% or more underweight	633-38.1%
1-6% underweight	502-30.0%
Normal	492-29.6%
Over 20% overweight	33- 1.9%
Pathological tonsils	1288-77%
Glands in neck	1003-60%
Deviated septum	976-58%
Vaccination absent	915-55%
Carious teeth	712-48%
Poor nutrition	640-38%
T. and A. recommended	494-29%
Blood Count recommended	12-7%
Badly shaped chests	435-26%
Defective eyes and lids	329-19%
Thyroid	201-12%
Fatigue posture	153-13%
Open mouth	101-6%
Adherent prepuce	73-4%
Flat feet	60-3%
Spinal curvature	43-2%
Chest observation rec.	35-2%
Heart observation rec.	26-1%
Hernia	22-1%

In addition to the organization of these rural clinics, the rural worker of the Tuberculosis Association initiates and supervises health work in as many of the forty-six schools in El Paso County as desire it. In the school year 1925-1926 fifteen schools did intensive health work. Games, stories, and contests were used as incentives for general cleanliness. Clean hands, faces and teeth, and the covering of coughs and sneezes were stressed with excellent results. Open windows and sufficient rest, as well as good eating habits, were encouraged also. Several milk drinking campaigns brought about marked gains in weight. When ten up-to-weight children were chosen from a small school for a good health float in a recent Kermess parade, the remaining under-weights began diligently to drink milk. Little by little The Colorado Springs Tuberculosis Association is helping the people to realize the value of annual physical examinations and good health habits as a vital contribution to the national campaign against tuberculosis.

Colorado Springs has only begun to meet the indigent tuberculosis problem, but enough has been accomplished to show what can be done when sufficient funds and enough trained socially-minded workers are available. Every indigent tuberculous individual who presents himself for aid should become an individual problem for trained social workers. No legislation will serve. No standardization is possible. After a thorough physical examination is given to a sick man, his history, personality and prognosis should be considered. Should this man be sent back to his County or State Sanatorium, or should he be placed in a local free one? Should his wife be sent for, or sent home, or should relatives be asked to contribute a regular sum for his maintenance here? It is self evident that the more centralized the agencies, the more efficiently will these charity organizations work. Only in this fashion can the greatest ultimate good be accomplished. In some instances several social organizations should confer to work out the best plan of action for each individual. It is surprising how surely the united efforts of the agencies achieve results. Where the Community Chest really functions, time, money and effort are conserved, which formerly were frittered away in the well meaning attempts of several unrelated organizations. Over-lapping is impossible, for the day an individual seeks aid, his name is sent to the clearing house and returned with the name of any other societies he may have visited. A strict check is thus kept on all applicants, and public funds are protected from "moochers" who ply their trade wherever possible.

In many instances unsuspected disease may be detected, and the family welfare protected. When a family is visited by the trained associated charity visitor for instance, she keeps her eyes open and reports any suspicious case of illness to the proper authorities. In this way many cases of tuberculosis have been diagnosed, and the proper care instituted for family and patient. Incipient children's diseases also are given prompt attention, with the necessary

isolation enforced for the protection of the rest of the family. One very definite result of these united efforts has been the educating of the poor to report for medical attention promptly instead of waiting until the sore throat becomes diphtheria, or the "cold" turns into pneumonia.

Every indigent family that learns to practice the rudiments of tuberculosis sanitation, and realizes their responsibility to the community instead of wandering from place to place ignorantly spreading the disease, becomes a definite asset in the national campaign to stamp out the great white plague.

We hope the time will soon come when every western community will recognize the necessity and establish an efficient social service bureau to meet the indigent tuberculosis problem. To give proper care to the sick parent and made adequate provision for his child—this is a medical and sociological problem.

SCARLET FEVER CONTROL

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Scarlet fever has been one of the most dreaded diseases for centuries, and since Loeffler, in 1884, discovered that the throats of scarlet fever patients contained excessive numbers of hemolytic streptococci, workers in all parts of the civilized world have turned their efforts toward determining the etiology of the disease.

Because of the difficulty of isolating the different strains of these organisms, as well as other difficulties peculiar to the study of this disease, no immediate success followed. In 1902, Dr. Moser of Vienna made blood cultures of several fatal cases of scarlet fever, with positive results, and repeatedly injected a killed broth culture into horses. He found that some of these horses, after several months treatment, produced a serum which had remarkable results when given to persons suffering with scarlet fever.

In 1906, Gabritschewsky made certain experiments and observations showing that, if children were injected with a toxic broth and killed culture of the same organisms used by Moser, a rash would develop in about fifteen percent of the cases, while, if repeated injections were made, an immunity would result and no rash or other symptoms appear. Many thousands of children in Russia were immunized by this method with apparently good results.

Sovchenko, another Russian, at the same time showed the presence of a toxic filtrate from a broth culture of the suspected streptococci, and used it in producing an antitoxic serum from horses.

No striking addition to our knowledge of the disease was made after the work of these Russians until 1923, when Dochez and the Dicks, working separately and simultaneously, made great strides in determining the etiology and a method of specific treatment and prevention of scarlet fever. You are all familiar with the rather unique method which Dochez used for the production of his serum and I will not go into details concerning that subject. This serum gave similar results to those already reported by Moser and others.

The Dicks were able to establish the etiology of scarlet fever by inoculation experiments in which the hemolytic streptococci used fulfilled all the requirements of Koch's law:

"The specificity of a micro-organism is not demonstrated without the fulfillment of the following conditions: (1) The micro-organism is present and discoverable in every case of the disease. (2) It is to be cultivated in pure culture. (3) Inoculation from such culture must reproduce the disease in susceptible animals and the micro-organism must be again grown in a pure culture."

Up to that time there had been no convincing evidence that the hemolytic streptococci played any but a secondary role in the disease. Experimental scarlet fever had not been produced, and the lasting immunity usually conferred by one attack of the disease was not considered characteristic of the streptococcus infections. The Dicks also demonstrated after very careful research that an amount of toxin which, when injected intracutaneously in non-immunes would develop a reaction of about two centimeters in diameter, was an amount which would differentiate between the susceptible and the insusceptible. Thus the Dick test was developed and has become of almost equal importance with the Schick test, and is directly analogous to it. In 1924, the Dicks also reported a scarlet fe-

Read before the New Mexico Health Association held at Albuquerque, May 17, 1926.

ver antitoxin produced by immunizing horses with scarlet fever toxin.

THERAPEUTIC VALUE OF THE ANTITOXIN

Following these new discoveries and experiments in 1923 and 1924, data were compiled showing the curative value of scarlet fever antitoxin. These data have since been amplified, verified, and extended. In the study of this subject we should remember that uncomplicated scarlet fever is a specific toxemia caused by an infection of the throat by streptococcus scarlatinae, with no invasion of the body tissues by these organisms. When septic complications arise there is a local or general invasion of the body tissues by other pyogenic organisms. A close study of scarlet fever indicates three fairly well defined stages of the disease. First, a specific toxic stage of three to seven days. Concurrently there is a gradual increase in sepsis, most cases showing a marked septic infection after the fourth day. Later, a post-scarlatinal sepsis often persists and constitutes the most serious aspect of the disease. If we keep in mind these different stages in an average case of scarlet fever it will serve to explain the results following the therapeutic employment of scarlet fever antitoxin. It will readily be seen that, when the antitoxin is given during the early stage of toxemia, the disease will be aborted by neutralization of the toxin. In the next stage, however, when streptococci are circulating in the blood the problem becomes more complicated. And in the third stage purulent involvement of the tissues may ensue. This makes it clear why so much effort has been exerted toward producing a serum with both antitoxic and bactericidal properties.

From the mass of evidence at hand, however, it seems that, at present, only the antitoxic properties can be fully relied upon, for post-scarlatinal sepsis has not yet yielded to administration of scarlet fever antitoxin. In several hundred cases treated with this antitoxin and reported by the Dicks, Blake, Trask, Park, and Zingher of New York City, and Dr. Place of Boston, the results in moderately severe cases have been a marked decrease in the number of deaths as well as a very noticeable decrease in the occurrence of post-scarlatinal nephritis, otitis media, and other complications. The result of antitoxin treatment in severe cases has shown a decrease in the percentage of deaths from twenty percent where no antitoxin was used, to three percent where the antitoxin was used early. None of the patients who received the antitoxin on the first day of the rash developed complications or sequelae.

Another effect of the antitoxin is the unmasking of such complications as are already present. The removal of the toxic element of the disease makes the recognition and proper treatment of early complications more certain.

The size of the dose of antitoxin to be given is a question which should always be considered. Blake and Park (N. Y. State Journal of Medicine, December 15, 1925), who have made a very close study of this problem, advise in moderately severe cases the administration of an amount which will neutralize 500,000 skin test doses. (The government standard for marketed scarlet fever antitoxin requires each cubic centimeter of antitoxin to neutralize one thousand skin test doses of scarlet fever streptotizin.) For severe cases they say three or four times this amount should be used, and, whenever possible, given intravenously.

PREVENTION IN THOSE EXPOSED

There is evidence that scarlet fever antitoxin is a fairly certain preventive against the disease, but not as reliable as the use of diphtheria antitoxin to prevent diphtheria. This is probably due to a small percentage of scarlet fever cases being caused by unusual strains of streptococci. Another unfortunate feature of the routine use of this procedure in attempting to immunize those that are exposed, is the large number of cases of serum sickness following its use. Even when the serum is refined, some preparations produce quite serious serum sickness, and the symptoms have at times been alarming. It seems reasonable to expect that our laboratory workers will eventually overcome this trouble. Dr. Park makes a Dick test of all contacts and in twelve hours notes the results. With all positive reactors he immediately begins immunization with toxin. If sore throat develops later he gives a therapeutic dose of antiscarlatinal serum which will generally prevent the development of a rash. Whether this method is practical in New Mexico is a question which I should like to hear discussed. The development of immunity after the administration of the toxin, is rapid and may be accomplished in a large percentage of cases in a week or ten days. Immunization with antitoxin lasts only a few days while immunization with the toxin lasts nine months or longer.

My remarks concerning this question are largely gleanings from current literature,

my chief sources of reference being Doctors Park, Blake, and Zingher of New York City and Dr. Place of Boston, in all of whom I have utter confidence. My personal observations are indeed limited. In our county we gave antitoxin to forty contacts. Most of these contacts were children in the most susceptible age groups and, for the most part, were children living in homes where isolation of the patient was impossible. No case having a prophylactic dose of the antitoxin, developed the disease. In communities where the disease was prevalent we gave the toxin to school children (about 300). No case developed after the first dose of the toxin.

MORBIDITY REPORTING

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All the physicians present are acquainted with the Form "A" notifiable disease cards; and all the health officers with both Form "A" and Form "B." But it may not be amiss to reproduce them here with a brief summary of their uses, for the benefit of those present who are neither health officers nor doctors.

Form A card asks for the following information:

County .....
City or Township.....Date....., 19....
Disease or suspected disease.....Date of onset.....
Patient's name....., age...., sex...., race.....
Patient's address....., occupation.....
School attended or place of employment.....
Name of householder or parent.....
Number in household: Adults....., children.....
Probable source of infection or origin of disease.....
If disease is smallpox type....., number of times successfully vaccinated and approximate dates .....
If typhoid fever, scarlet fever, diphtheria, or septic sore throat, was patient or is any member of household engaged in the production or handling of milk?.....
Name of person reporting disease.....
Address.....

This is a franked card, to be mailed without envelope to the "Assistant Collaborating Epidemiologist."

Form B card calls for exactly the same information on one side, and on the other side for the following data to be furnished by the Health Officer:

Date Report Received.....
Date Report Forwarded.....
Was the Case Investigated?.....
Measures taken to prevent the spread of the disease or the occurrence of additional cases.....
.....
Signature of Health Officer.....
Address .....

It is to be mailed in a franked envelope to the Assistant Collaborating Epidemiologist.

Form "A" is a franked card, addressed to the "Assistant Collaborating Epidemiologist," who is invariably the county health officer. This is to be filled out and mailed to him by the physicion who is called to see the case, by the teacher who finds it in the school, by the parents, or by any other person interested in the prevention of disease, and knowing of the existence of a case in his community. It is not at all necessary that the diagnosis be positive. In fact, if doctors and other people will report **suspected** communicable disease to the health officer, at the same time cautioning those interested as to the possibility of its being contagious, we should not have quite so much of everything running loose. In all too many instances, hesitation in making a positive diagnosis, with reluctance to report suspected disease, has turned loose an infection which simply got out of control before the health officer was informed of it. Holding up diagnosis until the laboratory report is received, is doubtless feasible and proper in communities where laboratories are quickly available; but in New Mexico, with its one public health laboratory (and not many private ones) and the inevitable delay, due to distance, in transmitting the specimens and getting the reply back, it is apt to result in a prairie fire spread of something that nobody wants. I know of one doctor who came near losing his two babies because a fellow practitioner hesitated to diagnose whooping cough, and did not report it. That child coughed her way to the home of every neighbor, to the movie, the beauty parlor, and practically everywhere else in town. The neighbors reported the case to the health officer and he, in turn, felt he could not infringe upon the case of a fellow physician. That town is a carnival of whoops and probably will be, for months to come. Already deaths from pneumonia following whooping cough are being reported. The fault, in this instance, lies with three people: the physician who attended the case and did not report it as a suspected communicable disease; the health officer who should have investigated upon the telephoned reports of the neighbors; and the

Read before the meeting of the New Mexico Public Health Association, at Albuquerque, May 17, 1926.

mother who, herself convinced that her child had whooping cough, did not care enough for the welfare of others to keep her at home, relying upon the fact that "the doctor didn't say it was whooping cough."

In this connection, it is not necessary that a Form "A" card be received by the health officer before he takes action in a case. He is expected to investigate upon report by telephone, telegraph, mail or personal communication, whether from doctor, teacher, member of the family or other person. Thus he may pick up the seed of a wide-spread epidemic and often can prevent it from even sprouting. True, he may sometimes find that he has traveled many miles on a non-contagious case; but even so, he may find the procedure of the health officer in one of our northern counties an excellent example to follow. When he was called sixty miles and found tonsillitis or a bad cold, he told people he would rather be called that far a dozen times to find that it was **not** diphtheria than to have them neglect once to call him when it was diphtheria. That county had been diphtheria ridden for years. For the past two years, at least, there have been practically no cases, and when one has occurred, control measures have been instituted so promptly that there has been no spread, **because** the health officer was not the last person in the county to hear of it, —but among the first. He had his county educated. Parents, teachers, neighbors—all knew that prompt reporting meant immediate measures to prevent spread of disease. They were taught the value of control—the lessened danger to their families, the greater efficiency of their schools,—the vital importance of working with the health officer. The people of that county are not afraid that next year's school budget may be reduced because this year's attendance was broken into by disease. They **know** that a prompt report to the health officer may result in some children being excluded, but that, as a whole year's proposition, the attendance will be better than if they concealed the fact that there was a case of sickness. This is very different from the counties in which a teacher is allowed to teach while undergoing the torture of mumps; or where children who actually whoop may be excluded from school for a few days, but the health officer learns of it only when they are returning to school. In one town where the latter method prevailed this year, the schools have been all shot to pieces through their own failure to realize the value of cooperation with the health department.

The Form "B" card is provided with franked envelopes for the use of the health officer in transmitting to the state office the report of the disease or suspected disease, and, most important of all, what he has done to prevent the spread. This is the only means the state office has of knowing what is going on—until the local citizens get wild and tell us what a poor creature the health officer is. If he has neglected to report what comes to him, his follow-up, his effort to find the source, and, in any event, what he has done to prevent an epidemic, we have no defense for him when criticism comes in, because we do not know what has been done. If, however, he has promptly reported all cases reported to him, besides what he can find for himself, and has been specific as to control measures, we can and do point out to protesting citizens (of whom there are many more than you might suspect) that he has done all that anyone knows how to do, and that the fault, if any, does not lie with the health officer, but most likely with the people who do not follow his directions; or that, as with measles (to pick on the perpetual offender) no one can catch up with it once it cuts loose.

When Form "B" cards were first used in this state the back was blank; but every health officer had his own ideas as to what should be told and there was such lack of uniformity that the present style was secured, in the fond belief that it was practically faultless. Even so, some very excellent health officers send in a card reporting, perhaps, a case of diphtheria, and say, "All possible measures taken," which means nothing at all. Or they check placard, isolation, quarantine and disinfection and wholly fail to mention antitoxin to contacts or, more important still, search for carriers. This is also true of typhoid reports. We should very especially like to have a record of the offers made by health officers of antitoxin, typhoid vaccination and vaccination against smallpox, with a statement showing whether the offer was accepted or rejected, and, in the latter case, why, if it is possible to secure a reason.

There are two glaring shortcomings in a great many reports received: (1) the source of the infection; (2) whether the patient who had smallpox was **successfully** vaccinated. To find the probable source of infection is usually possible and the knowledge is extremely valuable. We can cite the typhoid outbreak in Sierra County last

year as an excellent example. The source had to be found before the outbreak could be controlled. Later, we had a case, reported from Minnesota, of typhoid contracted at Hot Springs; and still later, a family which had been infected there was found in a remote part of an adjoining county. Without knowledge of the Hot Springs epidemic, the source of these later cases would have been "unknown." Had one of them been reported before the outbreak in Sierra was known, it would have caused investigation and quite likely have resulted in nipping that before it gained the headway which it did gain. Unless the source is discovered, how can the health officer know what measures will prove effective to prevent the spread of the disease?

The vaccination record in smallpox cases is about the only evidence we have to produce when some honest but misguided person insists that vaccination does not prevent smallpox. If the report shows that the patient was vaccinated in 1923 and had smallpox in 1924, how are we to convince the conscientious objector that vaccination does protect? **Successful** vaccination is what the cards ask for and the facts should be obtained in every instance.

Upon receipt of the Form "B" cards in the state office, they are entered upon weekly summary sheets—one sheet for each disease for each week of the year, a column to each day of the week. The Monday following, the totals are entered and the result telegraphed to the Surgeon General of the United States. A monthly statement is also furnished to the United States Public Health Service. At the close of the year, these weekly sheets are summarized, the totals entered, and the year's weekly incidence of chickenpox, measles, whooping cough, typhoid fever, scarlet fever, smallpox, diphtheria and tuberculosis are entered upon a continuing summary sheet, one for each of these diseases. We now have a six year record which it is both instructive and chastening to study.

Morbidity reporting necessarily brings in death certificates. When these certificates come in, presumably on or somewhere near the tenth of the month succeeding their date, deaths from preventable diseases are checked against report cards in the files. The percentage of unreported cases resulting in death is small; but there should not be one such case. Report of the disease should be made in those cases where a doctor is called and finds the patient dying, or already dead. If the physician can decide the cause of death, he can report it; that is, the same degree of knowledge which warrants the statement on the death certificate is sufficient to enable him to make a report. It may not be as decisive as he could wish, but it is very much more satisfactory than to have the death certificate state the cause of death as, for instance, puerperal septicemia, and find no report of the case in the files. I pick on puerperal septicemia because it is one of the most frequent offenders in this connection. The greatest source of this discrepancy is tuberculosis, closely followed by cancer, and these we find especially hard to check up on because they may well be cases which were reported years ago and in which death has occurred but recently. But there have been many cases where the death certificates for a month or two revealed some fatal disease running riot. This where there was no medical attendance. Every health officer should check up his death certificates immediately upon receiving them and, where he finds several unaccounted for deaths, investigate without delay.

To sum it all up, the state office must know what you are doing. It cannot know unless you tell the story. You cannot know what is going on in your county unless you educate your people to tell you promptly what is happening. They will not do so unless they know why they should and what benefit is to be derived therefrom. They depend on the family physician and the health officer to tell them why, and they must feel that a report will be investigated without delay—that you are interested in their community and in their welfare. It is not often that either a county or the state health officer has the opportunity that was afforded the state department a few years ago. A member of the legislature opposed all appropriation to maintain the state bureau on the ground that he didn't know anything about it, never had seen anything it had done, and therefore was against it. In a few months, an outbreak of typhoid brought that man to Santa Fe to ask for help from the state bureau, and when it was given and the epidemic stopped, he said, with much contrition, that he simply hadn't known what the state bureau's duties were and he never would fight it again. The county health officer of that county should have been the means of educating that man, his failure to do so, with his failure to attend to the duties of his office, probably cost one or two of the several valuable lives lost at that time.

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ANCIL MARTIN
1861—1926

In the late afternoon of August second, there passed from us the leading medical spirit of Arizona. The sense of personal loss which the editor feels in attempting this appreciation, is excelled only by his knowledge of the loss sustained by the entire medical profession of the state. The personal friendship, now broken, extended over nearly twenty years, but the services rendered by Ancil Martin to the medical profession of the west, to Arizona in particular, covered a period of thirty-five years; behind him he leaves cherished memories in the hearts of friends and associates, with monuments of achievement in his professional work, which many men of greater public renown might well envy.

Dr. Martin graduated from Rush Medical College in 1885, and after one year as assistant to Dr. William H. Daly, of Pittsburgh and further training in the specialties of eye, ear, nose and throat, taken in New York City, he moved to Iowa where he practiced until coming to Phoenix in 1891.

Dr. Martin was intimately associated with the early progressive movements in medicine in Arizona. He was a charter member of the Maricopa County Medical Society and the Arizona Medical Association; he was the first secretary of each of these organizations and later president of each. He helped to draft the first Medical Practice Act of the Territory of Arizona, and served as secretary of the Board of Medical Examiners for many years, until statehood brought the inevitable changes in appointive offices. During his years of service on the Board of Medical Examiners, he came in contact with all the new doctors entering the state and it was in this way the editor met him first. Never will be forgotten the kindness and courtesy, the advice and encouragement to a young doctor entering upon his work in a strange land so different from the eastern state recently left behind. This encouragement kept up during several years of hard struggle and gradually ripened into a warm and cherished friendship. It has been so with many doctors who came to Arizona during the years past, some to stay and some to pass on to larger fields of work. But all who had the privilege of contact with Ancil Martin will remember it.

Personal friendships are pleasant to recall, but Dr. Martin's contribution to medical progress constitutes his lasting monument. From the time he took up work in Arizona, he kept a most careful record of all his cases, and a recent survey of these brought forth some facts astounding even to his most intimate friends. When he reported, before the Arizona State Medical Association, last April, his cases of magnetic foreign bodies in the eye, an eminent visiting ophthalmologist remarked that he doubted whether it could be equalled by any eye specialist in the country. At the time of his death, Dr. Martin was compiling a report of all foreign bodies in the eye treated by him during the past thirty-five years. This would have proven, and may yet prove, as a posthumous record, an even more astonishing revelation of the volume of this class of work done by him in Arizona.

A further development of the past year was the discovery that Dr. Martin described the first cases of tularemia on rec-

ord. In 1909, in Prescott, he reported four cases of conjunctivitis transmitted from rabbits suffering with "rabbit septicemia." These were patients treated by him in 1907 and he later found record of one treated in 1902. This so-called "rabbit septicemia" was named tularemia by Francis in 1911, who described it as a hitherto unknown disease in human beings. Upon learning about Dr. Martin's cases, the United States Public Health Service gave him the somewhat embarrassing title of "the father of tularemia."

A casual remark, also during the past year, brought to light the fact that Dr. Martin brought the first x-ray tube to Arizona. This was in 1898, less than two years after the discovery of the x-ray. A coil to operate the tube was made in Phoenix, though this was soon replaced by a static machine brought here by Dr. H. E. Stroud, who recently died in Los Angeles. Dr. Martin produced documentary evidence to substantiate the fact that he was the pioneer roentgenologist, as well as the first and leading ophthalmologist of the state, but it was characteristic of his modesty and unassuming life that he watched many years of x-ray development pass and only a direct statement, known to him to be incorrect, about the first x-ray work done in Arizona, brought forth his rightful claim to priority in this matter.

At the time of the World War, Dr. Martin promptly offered his services to the Government, but the age limit of 55 barred him. He served as chairman of the Medical Advisory Board for Maricopa County, and also as chairman of the Medical Council for Arizona, and his final reports on the work of these two important bodies brought favorable comment from Washington.

Dr. Martin helped to found St. Joseph's Hospital, and has been a steadfast friend of that institution during the slow years of its growth. For many years he was the only ophthalmologic surgeon in Arizona and the work attracted to Phoenix by his skill in eye and ear surgery has done much to build up this hospital.

He has served on the advisory and consulting staff of St. Luke's Home since its beginning.

The last conspicuous recognition received by Dr. Martin was his selection to discuss the paper of an eminent eastern specialist, on "Foreign Bodies in the Eye," before the Dallas meeting of the American Medical Association. There was a difference of opinion in the discussion, the honors all being with Dr. Martin. The statement that foreign bodies could not remain within the globe for any length of time without causing irritation was refuted by Dr. Martin, who recited as many as seventeen cases of his own where such particles had remained within the eye for periods varying from two to seventeen years, with preservation of vision. He was preparing a report of these cases at the time of his death.

Dr. Martin was honored by membership in the American Acadmey of Ophthalmology and Otolaryngology and in the American College of Surgeons, being the first of the ophthalmologists in Arizona chosen for the latter organization.

It is no reflection upon any one and no exaggeration of the truth, to say without reservation, that in the passing of Ancil Martin we have lost the most eminent medical man in Arizona, one of the state's most honored citizens, and one whom it was a rare privilege to call a friend, for anyone enjoying that distinction.

JAMES ARTHUR VAN HORN
1872-1926

On July fourteenth occurred the death of Dr. James A. Van Horn, of Hope, New Mexico, a member of the New Mexico Medical Society. Dr. Van Horn was a graduate of Memphis Hospital Medical College, class of 1893. He came to New Mexico on account of tuberculosis and had not been in active practice for several years, though retaining his active interest in the profession. He maintained his membership in the county and state organizations and fellowship in the American Medical Association. His remains are to be shipped to Memphis for burial.

DR. ORVILLE H. BROWN, ASSOCIATE EDITOR

The management of the journal is to be congratulated in the addition to our staff, by the House of Delegates of the Arizona State Medical Association, of Dr. Orville H. Brown, as the Associate Editor representing Arizona.

Dr. Brown is a very eminent specialist in internal medicine, nationally known for his work in asthma. He has had much experience in editorial work and, of most importance, will take the interest necessary to fill the position with credit.

In this issue of SOUTHWESTERN MEDICINE will be found a section of Book Reviews and Abstracts, of which Dr. Brown has taken charge. His reviews of books

represent careful and conscientious work and to our readers we commend this department as containing as interesting and instructive material as will be found anywhere in the journal.

THE ARIZONA STATE HEALTH DEPARTMENT

Our editorial of last month was misconstructed in several quarters and was thought to be a personal reflection upon the present State Health Officer in Arizona. No such intention was in our mind. We have every respect for Dr. F. T. Fahlen, the present State Health Officer of Arizona. We have the utmost confidence in his earnestness and believe that he has done everything which can be accomplished under the system now in vogue in Arizona. We still believe, however, that directing the public health activities of a state department of health is not the sphere of work for which Dr. Fahlen was trained. He is an eminent worker in internal medicine and as such commands deserved respect and confidence. In the position of State Health Officer he has done as much as any internist, surgeon, urologist, radiologist or eye specialist could do in a capacity which demands as exacting preparation and training as any of these other specialties. Dr. Fahlen has held this position longer than any previous State Health Officer and is now probably the best trained man for the position in the state. We would, therefore, oppose a change in the office should a Republican governor be elected, because we do not think any other appointee would be so well prepared to perform the duties of that office. This should make our position clear. We want for Arizona what other states have: a Department of Health not subject to sudden changes whenever a new party comes into power; a Department of Health directed by a man specially trained in public health administration and work, who devotes his entire time to this work; district health officers who are also specially trained for their work; and an appropriation sufficient to permit thorough, adequate, and scientific work in all branches of public health.

If we cannot change completely and come into line with the other forty-five or forty-six of the union, let the medical profession of the state contend for the man best equipped to carry on the work under the present inadequate system. As we have said before, Dr. F. T. Fahlen has had a longer period of service in the office and is probably the man best equipped by experience, of all the doctors of Arizona, for the work.

INDUSTRIAL FEE SCHEDULE IN ARIZONA

Upon the issuance of the Medical and Surgical Fee Schedule by the Industrial Commission of Arizona, many objections began to pour into the office of the Commission, and the officials of the State Medical Association were urged to take some action in protest against this schedule.

Dr. Charles S. Vivian, vice president, acting as president in the absence of Dr. George A. Bridge, received several petitions to call a meeting of the House of Delegates to consider this schedule. This meeting was called to meet in Phoenix on July 16th; delegates were present from Gila County, Yavapai County, Mohave County and Maricopa County, with telegraphic advices from Pima County, Yuma County, Santa Cruz County, Coconino County and Greenlee County.

After long discussion, it was voted that a committee be selected to represent the House of Delegates and the Association in negotiations and conferences with the Industrial Commission. This committee was instructed to seek revision of the fee schedule on the basis of an average of the usual fees charged throughout Arizona for similar classes of work. Resolution was passed asking the Commission to accept this committee, or future committees to be duly selected by the Association, as advisors in all matters in which the medical profession is interested. The committee selected was as follows: Dr. H. T. Southworth, Prescott, chairman: Dr. Clarence Gunter, Globe; Dr. George Shields, Yuma; Dr. H. B. Gudgel, Phoenix; Dr. W. Warner Watkins, Phoenix.

This committee met with the Commission on the following day (July 17th) and perfected the arrangement whereby the Commission agreed to accept this committee in an advisory capacity in those matters in which the medical profession has an interest, such as fees, rules for the management of cases, etc.

The committee asked for two weeks in which to prepare the brief of objections to the fee schedule. On July 31st, the committee again met with the Commission and presented their objections, which are being studied by the Commission.

The Commission is entirely sympathetic, and the purpose of this article is to reassure the medical profession of the state

regarding the attitude of the Industrial Commission. They have no intention of doing otherwise than give every consideration to the objections of the medical profession and meet those objections with revisions. wherever this can possibly be done.

The medical profession should, on their side, try to realize the difficulties facing the Commission, and lend every cooperation possible in handling the injuries and making reports in due form.

CASE OF RELAPSING FEVER IN ARIZONA

Early in May, 1925, Dr. R. O. Raymond, of Flagstaff, had under observation a patient with chills and fever occurring regularly every seven days. Suspecting some type of malaria, blood smears were taken on May 3rd during the fever and sent to the Pathological Laboratory in Phoenix. Examination of these showed numerous spirochetes with the morphological appearance of the organisms of relapsing fever. One slide of the stained blood was sent to the Hygienic Laboratory, Washington, regarding which they wrote as follows:

"We have examined with interest the blood smear received from your laboratory. Careful search reveals the presence of an occasional, faintly stained spirochete-like body. These, taken in conjunction with the typical clinical symptoms, would in our opinion indicate relapsing fever. If the patient has not received arsphenamine, some of his blood, taken before the crisis of a pyrexia, and inculcated into white mice, should give a marked multiplication of spirocheta wtihin twenty four to forty eight hours."

Prior to the receipt of this advice, Dr. Raymond had administered neoarsphenamine and no further attacks occurred. Dr. Raymond has recently submitted the following history of this case:

As there has been no case of relapsing fever reported in the United States since 1918, the following may be of interest:

On April 12, 1925, Mr. J. M., age 52, storekeeper, was confined to his bed because of severe headache, mostly occipital. At 5:30 p. m., he had a temperature of 104, pulse 135, B. P. 140/80, and was sweating profusely. He stated that the present illness started on March 30th, and that in the beginning the chills recurred every other day and that he was unable to do his work. He is not a person who would give an accurate history. A specimen of urine was examined, but no evidence of pyelitis found. He had four more attacks, each a week apart, and each one slightly milder than the previous one. Blood slides were taken during the intermission (looking for malarial infection), except on May 3rd, when they were taken during the fever.

Regarding the slides taken on May 3rd, the Pathological Laboratory, in Phoenix, reported the finding of "spirochetes which morphologically are the spirochetes of relapsing fever." Upon receipt of this report, on May 5th a dose of neoarsphenomine, .15 Gm. was given intravenously. There were no more attacks.

It has not been possible to trace the infection to lice, ticks, bedbugs or rat bite. Patient had not been away from this vicinity for more than a year. A week or two before the illness, he was unable to get home on account of some trouble with his car, and he slept in a rooming house a part of that night. His wife occupied the same bed previous to and during his illness, except the night mentioned. His son is twenty years old and the only other member of the family."

In response to inquiries sent to the United States Public Health Service by Dr. Raymond, Dr. Stimson replied to him under date of May 5th, as follows:

"You are informed that this office is unable to suggest a solution of the source of infection of the case which you report. No cases of this disease have been reported to this office from the United States. We should be inclined to scrutinize very carefully the basis of diagnosis, but if this is well established the case is of considerable interest and should be reported in detail."

The Pathological Laboratory, when shown this letter from Dr. Stimson, sent their choice slide from this case to him. He turned the slide over to the Hygienic Laboratory, and under date of June 10, 1926, Dr. McCoy, Director of the Hygienic Laboratory, writes as follows:

Your letter of May 27th to the Surgeon General regarding the diagnosis of a case of Doctor Raymond's in which you found spirochetes present in blood films has been referred to us for reply.

Examination of the film which you sent with this letter shows rather numerous spirochetes indistinguishable morphologically from Spironema recurrentis (Spirillum obermeieri). While it might be difficult to differentiate these microscopically from the spirochete of Weil's disease or from the spirochete of yellow fever, both of the latter are found in blood films usually with great difficulty and could almost be excluded for this reason. Neither of these two conditions respond to neoarsphenamine while that drug is an absolute specific for the spirochete for relapsing fever. In view of the fact that it was impossible to get positive blood films from this case after treatment with neoarsphenamine, we have no hesitancy in agreeing with you that the spirochetes seen in this blood film are those of relapsing fever. Of course, it would be useless to speculate as to what variety it might represent and the only way in which it could have been identified would have been through cross agglutination or immunological reactions with a pure culture of the parasite.

As to the source of infection, some light might be thrown on the case if it could be ascertained just where the patient slept or who he slept with on the night referred to in Doctor Raymond's letter of May 1st. The week's incubation is a little long but symptoms may have developed earlier than he stated to the doctor.

The following references may be of some service to you:

Stitt—Diagnostics and Treatment of Tropical Diseases, page 86, General article.

Castellani and Chalmers—Manual of Tropical Medicine, 3rd edition, pages 435, 451.

For descriptions of the various strains of spiroschaudinnidae. Spiroschaudinnia novvi Schellach, 1907, page 445, is supposed to be the cause of re-

lapsing fever of North America. For clinical description of which see same authors, pages 1323-1325.

The first article to report cases of relapsing fever in the United States, presumably originating in this country is by Robert J. Carlisle, May, 1906. Jour. of Inf. Dis. v. 3, page 233,—"Two cases of relapsing fever with notes on the occurrence of this disease throughout the world."

A fairly recent article reporting the disease in Colorado is by Dr. J. J. Waring, in American Journal of the Medical Sciences, June, 1918, vol. 155, page 819, "Relapsing fever, endemic in Colorado."

In these articles you will find that at one time quite an epidemic of relapsing fever occurred in California, your neighboring state, among Chinamen. The disease has also been reported a number of times in Mexico on your south."

It, therefore, seems to be well established that an isolated case of relapsing fever has been detected in Arizona. No doubt the infecting organism was left behind in the bed where this patient slept, by some former occupant of the quarters.

LEGAL ASPECTS OF PSYCHIATRY

The American Psychiatric Association has a Committee on the Legal Aspects of Psychiatry, of which Dr. Karl Menninger, of Topeka, Kans., well known to readers of this journal, is chairman.

This committee made a report at the annual meeting of the Association in New York, in June. The report was accepted by the Association and placed in the hands of their Council for study and further report a year hence. The official statement following the report is given below. Dr. Menninger will be glad to have comments from any readers of this journal. His address is Mulvane Building, Topeka, Kans.

OFFICIAL STATEMENT OF POSITION

We believe,

(1) THAT the psychiatrist's chief concern is with the understanding and evaluating of the social and individual factors entering into failures in human life adaptations.

(2) THAT crime is a designation for one group of such adaptation failures, and hence falls definitely within the focus of psychiatry, not excluding, of course, certain other branches of science.

(3) THAT crime as well as other behavior and characterologic aberrancies can be scientifically studied, interpreted and controlled.

(4) THAT this study includes a consideration of the herdeitary, physical, chemical, biological, social and psychological factors entering into the personality concerned throughout his life as well as (merely) in the specific "criminal" situation.

(5) THAT from a study of such data we are enabled in many cases to direct an attack upon one or more of the factors found to be active in a specific case to effect an alteration of the behavior in a propitious direction; while in other cases where this is not possible we are able in the light of past experience and discovered laws to foresee the probabilities to a degree sufficient to make possible proper provision against subsequent (further) injuries to society. By the same experience and laws we are enabled in still other cases to detect and endeavor to prevent the development of potential criminalty.

(6) THAT these studies can be made with proficiency only by those properly qualified, i. e., scientists who have made it their life interest and study to understand and treat behavior disorders.

(7) THAT this point of view requires certain radical changes in legal procedure and legislative enactment, insuring the following provisions:

(a) The court appointment, from a qualified list, of the psychiatrists testifying in regard to the mental status, mechanisms, or capabilities of a prisoner; with opportunity for thorough psychiatric examination using such aids as psychiatrists customarily use in practice, clinics, hospitals, etc.; with obligatory written reports, and remuneration from public funds.

(b) The elimination of the use of the hypothetical question and the terms "insane" and "insanity," "lunacy," etc.

(c) The exemption of the psychiatrist from the necessity of pronouncing upon intangible concepts of religious and legal tradition in which he has no interest, concern or experinece, such as "responsibility," "punishment" and "justice."

(d) The development of machinery adequate to the requirements of the psychiatric point of view in criminal trials and hearings, including court clinics and psychiatrists, and ultimately a routine compulsory psychiatric examination of all offenders with latitude and authority in the recommendations made to the court as to the disposition and treatment of the prisoner.

(8) THAT this also entails certain radical changes in penal practice, including:

(a) The substitution of the idea of treatment, painful or othrewise, for the idea of retributive punishment.

(b) The release of prisoners upon parole or discharge only after complete and competent psychiatric examination with findings favorable for successful rehabilitation, to which end the desirability of resident psychiatrists in all penal institutions is obvious.

(c) The permanent legal detention of the incurably inadequate, incompetent, and antisocial, irrespective of the particular offense committed.

(d) The development of the assets of this permanently custodial group to the point of maximum usefulness within the prison milieu, industrializing those amenable to supervised employment, and applying their legitimate earnings to the reimbursement of the state for their care and maintenance, to the support of their dependent relatives, and to the reimbursement of the parties injured by their criminal activities.

(9) THAT effective preventive medicine is applicable in the field of psychiatry in the form of mental health conferences and examinations, child guidance clinics, mental hygiene clinics, lectures and literature, and similar institutions and efforts.

(10) THAT the protection outlined provide an efficient and scientific solution to the problems of crime, viz:

(a) The protection of society.

(b) The rehabilitation of the "criminal" if possible.

(c) His safe and useful dispositon or detention if rehabilitation is impossible.

(d) The detection and the prevention or deflection of the development of criminality in those potentially predisposed.

SUCCESSFUL YEAR IN McKINLEY COUNTY (N. M.)

That the health unit in McKinley County has made an exceptionally good record for the last fiscal year is attested by its annual report. Every phase of health work has had attention, including some that are often neglected. It is difficult to make a selection among the many items, but only a few of outstanding merit can be mentioned specifically, as examples of the remainder.

Lectures given	202
Health exhibits	37
Sanitary inspections—private premises	2628
Sanitary inspections—public premises	825
Sanitary inspections—dairies	213
Sanitray inspections—other food handling establishments	120
Suspected venereal disease cases examined	58
Suspected tuberculosis cases examined	65
Goiter cases discovered	100
Prenatal cases advised	176
Prenatal cases visited at home	221
Babies examined	1179
Home visits to sick babies	724
School children examined	6163
Children attending nutrition classes	1875

This gives a fair idea of the volume of work done by the unit. Much of the results accruing can never be shown by figures, but a few tangible accomplishments have been tabulated.

New sanitary privies installed	300
Privies repaired	220
Septic tanks built	11
New sewer connections	52
New city water connections	61
Wells or springs improved	26
Public milk supplies radically improved	42
Correction of defects:	
Infants	177
Preschool children	167
School children	360
Adults	145
Undernourished children improved	1256
Nuisances corrected	569

All of this was accomplished by a health officer, a nurse and a half-time clerk, at a total expenditure of $7157. Of this amount, only $4307 came from taxes: a cost of **30 cents each for every person in the county.** Total costs amounted to only 51 cents per person. (Bulletin of N. M. Bureau of P. H.)

DR. KNOTTS OPENS SANATORIUM IN YUMA

Announcement has come from Dr. R. R. Knotts, of Yuma, Ariz., of the opening of the Cochan Hotel Sanatorium, for the management and treatment of tuberculosis. Stress is laid in his announcement upon the climatic advantages of Yuma.

SUPREME COURT REVERSES DAMAGE SUIT JUDGMENT

We note, with considerable gratification, that the Supreme Court of Arizona has reversed the decision rendered in the Pima County Superior Court awarding the plaintiff one thousand dollars damages against Dr. J. I. Butler, of Tucson. The Supreme Court noted, in its decision, that the only expert testimony offered in the case was to the effect that the defendant was not guilty of negligence or want of skill. The direct testimony on which the case went to the jury was with regard to the distance of the tube from the skin of the patient. The Supreme Court held that even if the jury accepted the testimony of witnesses that the distance was not more than twelve inches as against the direct statement of Dr. Butler that the measured distance was fifteen inches, there must be supplementary evidence that this lack of care, if such there was, contributed to the patient's suffering and death.

The court holds that the degree of care to be exercised by a roentgenologist in giving x-ray treatment is the same as is required of physicians and surgeons in general practice.

This decision of the Supreme Court has been awaited with some anxiety, as there were points involved of great importance to the medical profession of Arizona. We are gratified to be assured that the Supreme Court of Arizona is in line with the most advanced and enlightened jurisprudence of the country in deciding medico-legal questions.

DR. E. W. PROTHRO, the health officer of McKinley County (N. M.) has resigned and will leave at the end of July. His successor, **DR. A. M. WASHBURN,** who is now taking some special training under the Rockefeller Foundation, will find a high standard of accomplishment set before him.

DR. ROY E. THOMAS, of Los Angeles, formerly of Phoenix, Arizona, and well known to the medical profession of the southwest, was chairman of the Section on General Medicine of the California Medical Association, 1926 session, held in Oakland in May. His address, as chairman, appears in the current (July) issue of California and Western Medicine. His subject was "Our Present Conception of Essential Hypertensions." Dr. Thomas was president of the Arizona State Medical Association in 1915.

DR. FRED HOLMES, of Phoenix, has returned from his vacation spent at Mormon Lake.

DR. HARRY J. FELCH, of Phoenix, has returned from a month's vacation and resumed his work. The county work was taken care of, during his absence by Dr. Shelley.

DR. KIRK W. HOLMES, formerly of New York City, has been taking care of the practice of Dr. D. F. Harbridge during the summer. In our last journal, mistake was made in transcribing Dr. Holmes' name and it was stated to be Dr. Kirk W. Wilder, instead of Kirk Wilder Holmes. Apologetic correction is cheerfully made.

BOOK REVIEWS

An Intermediate Textbook of Physiological Chemistry; with Experiments. By C. V. Pettibone, Ph. D., Associate Professor of Physiological Chemistry, Medical School, University of Minnesota, Minneapolis; third edition; C. V. Mosby Company; 1925; $3.25.

It is commonly stated that physicians would do well to study each year a new text book on one or the other of the fundamental branches of medicine.

The facts of physiological chemistry are ordinarily, perhaps of more practical value to the practitioner than those of any of the other fundamentals.

In Physiological Chemistry come the facts of diet, digestion, assimilation, metabolism, elimination. From these facts especially does one learn of diabetes, nephritis, deficiency disease (so called) and much of practical bearing in many other diseases. Therefore keeping abreast of the discoveries in physiological chemistry is the duty of every physician.

This is a book of 404 pages with 230 of them devoted to the general discussion. The balance of the pages is for the table of contents, index and laboratory experiments.

The subject is handled in plain simple language, so that any physician should be able to read it with greater or less comprehension.—O. H. B.

The Form and Functions of the Central Nervous System—An Introduction to the Study of Nervous Diseases. By Frederick Tilney, M. D., Ph. D., Professor of Neurology, Columbia University; Attending Neurologist, The Presbyterian Hospital and the New York Neurological Institute; Consulting Neurologist, Roosevelt Hospital, New York; and Henry Alsop Riley, A. M., M. D., Associate in Neurology, Columbia University; Associate Attending Neurologist, New York Neurological Institute; Attending Physician Neurological Department, Vanderbilt Clinic, New York; Foreword by George S. Huntington, Sc. D., M. D., Professor of Anatomy, Columbia University; Second Edition; 591 Figures containing 763 illustrations of which 56 are colored; Paul B. Hoeber, New York; 1923; $12.00.

The reviewing of the Century Dictionary, Gray's Anatomy, Oser's Text of Medicine or some other monumental classic could be no greater task—yea, not even so great—than reviewing Form and Functions of the Central Nervous System; for this book is yet relatively unknown.

This book is exactly what the title indicates. Dr. Riley and Tilney have for years taugnt neuroanatomy; during the World War they were privileged to teach the subject to medical officers. The authors say, "Not the least among the difficulties of presenting such a course is the lack of any satisfactory textbook. No single work provides a clinical and physiological interpretation of the brain and spinal cord adequate to the requirements of practical application."

The reviewer is certain that any one who has attempted to make more than the usual medical curriculum study of the nervous system will agree with the above statement of the authors.

The structure of the nervous system is complex especially when not thoroughly co-ordinated with knowledge of its function.

The authors have given special emphasis to function and co-relation of function of the various structures. They have collected the work of the neuro-anatomists, physiologists, embryologists and clinicians and present a work certain to be generally recognized as a classic.

The cord, the medulla, the pons, the mid-brain; the interbrain and the endbrain are successively discussed. Their general outline is first to present the embryological, the phylogenetic, oftimes the ontogenetic, the macroscopic, the histologic and the functional aspects of a division of the nervous system, after which are presented clinical examples of the possible lesions of the division with the certain and possible general effects. Diseases of the nervous system per se are not discussed. The book is in reality a reference encyclopedia of the nervous system and it will become a part of the armamentarium of every person attempting to do nerurology in any of its phases.

The foreword by Professor Huntington is a beautiful tribute to two of his former students—no colleagues. His closing sentence is: "On behalf of my University, I wish to express our grateful appreciation of the product of a ripe American scholarship and training."

The table of contents is full and helpful for tracing down any particular subject. The index is highly serviceable and seems to be as complete as possible.

The glossary defines about 600 unusual terms, which adds materially to the delight of the study of the volume. Over 400 references to articles from all parts of the world are given. There are 12 pages of the table of contents, 43 pages of index and 1019 pages in the entire volume. These figures give some conception of the mammoth amount of painstaking work involved. The reading, careful analysis and abstracting of over 400 articles and books of various languages is appalling at least to one who has done that sort of thing.

The work of the publisher is artistic, superb. The cuts and plates seem to be always correctly placed

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and exact. The type is most readable. There is a minimum of typographical errors. In pages 813, 815, 816, the ff in several words failed to contact the ink and paper.

On page 866, 16th line, the word further is used when farther is probably the more desirable. Likewise on page 818 the authors use 'would' in the ninth line from bottom when 'might' apparently portrays more exactly the intent of the authors. They have finished the discussion of the meagre knowledge of the function of the globus pallidus and presented a case which fits in with the meagre knowledge and the word 'would' probably implies more knowledge than there is on the globus pallidus—but this is a mere nicety. The misspelled words are conspicuous by their absence. The reviewer became so entranced with the book that he read it from cover to cover—skipping now and then a page dealing with a subject such as histology where the splendid illustrations compensated for the unread pages.

The literary style is direct and simple as befits the subject. Where a structure exists with little or no known function, such facts are stated and handled with as few words as possible.

The reviewer is fully cognizant of the difficulty of doing justice to the review of a classic such as Drs. Tilney and Riley's; it is a rare pleasure and satisfaction to recommend the book to every one who is in any way interested in the study of the nervous system.—O. H. B.

International Clinics—Edited by Henry W. Cattell, A. M., M. D., Philadelphia; Vol. L, 36th Series, 1926; J. B. Lippincott Company. Philadelphia and London.

These volumes evidently have served a useful purpose, else they would not have been published for 35 years.

There are a number of helpful articles in the early part of the book. The one that impressed the reviewer the most was on cardiac arrythmias. It gives quite the clearest comprehensive discussion of the subject which we have seen.

Dr. Cattell's review of "Progress of Medicine for 1925" is highly interesting and instructive. He has a faculty of culling out just those articles of which one most wishes to know.—O. H. B.

Diseases of the Skin. By Richard L. Sutton, M. D., LL. D., F. R. S. (Ediu.). Professor of Diseases of the Skin, University of Kansas School of Medicine; Assistant Surgeon, United Stated Navy, Retired; Member of the American Dermatological Association; Dermatologist to the Atchison, Topeka and Santa Fe Hospital Association; Dermatologist to the Christian Church Hospital. With 1147 Illustrations, and 11 Colored Plates; Sixth edition, revised and enlarged; The C. V. Mosby Co., St. Louis; 1926; $12.00.

A more practical one voluume work on diseases of the skin can scarcely be imagined. It seems that every possible condition affecting the skin has been discussed and if possible photographed.

The text is clear, concise, and yet adequate. Verbosity is avoided. There are 1303 pages in the book. There are nine pages of table of contents with about 400 diagnostic headings. The indext covers 35 pages of double column. By the combined aid of the table of contents and the index one should be able to classify unknown skin conditions.

Just as delightful as the splendid handling of the language for the word pictures are the illustrations. The author has collected a most remarkable series of photographs and the publisher has succeded admirably in reproducing them. An occasional one, only, fails to show clearly the detail intended.

The publishers work throughout is highly creditable. The reveiwer takes pleasure in recommend-

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ing to all who see diseases of the skin, this book as likely to be exceedingly helpful.—O. H. B.

Young's Practice of Urology. Based on a study of 12,500 cases by Hugh H. Young, and David M. Davis, with the collaboration of Franklin P. Johnson; with over 1000 illustrations—20 being color plates—by William P. Didush; two volumes; W. B. Saunders Company, Philadelphia and London; 1926; $25.00

These two volumes are a digest and resume of the experience of Dr. Young and his associates in the practice of urology. They are more than this, for the authors quote freely from the literature. Little has been omitted, it would seem, which would add to the value of the volumes as reference works in urology. It goes without saying that the books are of exceeding worth to the urologists. The reviewer is impressed also with the amount of information in the works of interest to the internist and to the general practitioner.

Volume one has eight chapters: Physiology and Pathology of Micturition; Obstructions; Infections; Tuberculosis; Syphilis; Mycoses and Parasitic Diseases; Urolithiasis; Benign Hypertrophy of Prostate; Neoplasms. Volume two has 17 chapters: Malformations and Abnormalities; Traumatism and Foreign Bodies; External Ulcerative Lesions; Symptoms; The Examination; Operations (8 chapetrs); Kidney; Ureter; Bladder; Prostate; Seminal Vesicles; Scrotum and Contents; Urethra; Penis; Urology in Infancy and Childhood; Urology and Prostatic Organic Therapy; Study and Teaching of Urology.

A voluminous amount of original work has been done by the Department of Urology at Hopkins and rightly this has been given prominence throughout. The various scientific discoveries, operative procedures, instruments, germicides, etc., are too well known to the profession to need detailing in a review. On page 217 to 250 of Volume one is a discussion of antiseptics. The story is told of the development of new antiseptics in their own research laboratories and of their trials with failures and final success in mercurochrome—220 and others. The readers of these pages must feel and hope that still greater triumph will come from the work being done by these scientists.

The reviewer was particularly impressed with the description of the Brady Institute—its carefully planned architecture for the purpose intended and the systematic organization of the staff for all phases of the problems likely to be met.

The accomplishments of this Institute through the moneys supplied by Mr. James Buchanan Brady and other men of wealth should be an inspiration to other philanthropists to found institutions for other fields of medicine.

A notable feature of the volume is the work of the artist, Mr. William P. Didush.

The work of the publishers is of the highest of the publishing art. A splendid grade of paper is used throughout. The type and spacing make easy reading. The illustrations are uniformly well produced. Even the microscopic and x-ray photographs show splendid detail. There are a few typographical errors such as occur on page 248 in volume two in the last sentence on the page "On this account air is used by few very operators;" it is evident the words 'few' and 'very' are transposed; and on page 445 of the same volume we find in first line of fifth paragraph: "which we simultaneously done in France," evidently the word 'we' should be 'were.'

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senior author's name repeatedly occurring associated with instruments, modifications of instruments, operations, et cetera; it would seem that the senior author might have stimulated himself to have formed some other way of designating many of his splendid innovations and left it to the admiring posterity to have attached his name to those advancements which endure.

One of the many commendable features of the book is that the authors give credit not only to all those who have been immediately concerned with the preparation of the manuscript but to all resident and house officers for leaving behind them "excellent clinical and laboratory records, and who have been responsible for much of the success of the clinic." Each one is mentioned by name in the preface.

The reviewer unequivocally recommends the volumes as worthy of a place in any physicians library. —O. H. B.

Methods in Surgery—Used in the Surgical Division of Barnes Hospital, St. Louis Children's Hospital, and Washington University Dispensary; including outlines for case history—taking, preoperative and postoperative care of patients; routines, diets, etc; by Glover H. Copher, M. D., Instructor in Surgery, Washington University School of Medicine; Clinical Assistant to Barnes Hospital; Surgeon to Out-Patients, Washington University Dispensary; Visiting Surgeon, St. Louis City Hospital; C. V. Mosby Co., St. Louis, 1925.

This is a handy little volume prepared primarily for the guidance of house officers and students of Washington University Medical School. A description of its contents is given very well in the subtitles.

An occasional ungrammatic expression mars an otherwise well prepared and useful manual. On page 77 we find: "If you see someone else break technic, call their attention to the fact at once." The word 'his' should replace 'their' or 'others,' 'someone else.'

Other hospitals will profit by the study and perhaps use of this manual.—O. H. B.

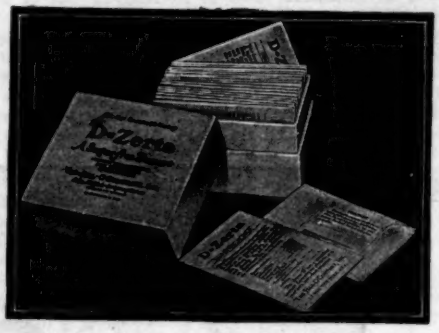
The Therapy of Puerperal Fever. By Privatdozent Dr. Robert Koehler, formerly Assistant of the Gynecological Department of The Krankenhaus Wieden (Director: Hofrat Professor Dr. Joseph Halban) in Vienna; American Edition prepared by Hugo Ehrenfest, M. D., F. A. C. S., Associate in Obstetrics, Washington University School of Medicine, Obstetrician and Gynecologist of the Jewish Hospital, Consulting Obstetrician, to St. Louis Maternity Hospital, St. Louis; with 27 illustrations; The C. V. Mosby Co., St. Louis; $4.00.

Monographic books, unlike most medical books, refuse to grow old in that they reman valuable for reference. Dr. Koehler has cited about 1300 writers. America is well represented. He has also used his own experiences in the wonderful clinics of Vienna.

There are seven chapters with subject matter as follows: Protection of the Patient; Prophylactic Immunization; General Therapy; Local Therapy; Surgical Therapy; Medicinal Treatment of the General Infection; Chemotherapy. The author inclines to conservative treatment. He has no startling recommendation to make.

Dr. Ehrenfest has done his work admirably. Words are carefully chosen and sentences well constructed.

The reviewer believes that all who are doing obstetrics will wish this book on their shelves. As there is an elaborate discussion of peritonitis the general surgeons will also likely wish it on their shelves. O. H. B.



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Personal and Community Health. By Clair Elsmere Turner, Associate Professor of Biology and Public Health in the Massachusetts Institute of Technology; Associate Professor of Hygiene in the Tufts College of Medical and Dental Schools; Sometime member of the Administrative Board in the School of Public Health of Harvard University and the Massachusetts Institute of Technology; Fellow American Public Health Association; Major, Sanitary Corps, U. S. A. (Reserve). Illustrated; The C. V. Mosby Co., St. Louis; 1925. $2.50.

As the author states in his preface: "This book has been prepared for the student at the University, college or professional school." It is a plain statement of fact. It is a trifle heavy for many of the readers; but for those who have had sufficient training the physician may safely recommend this book.—O. H. B.

Eye, Ear, Nose and Throat Manual for Nurses. By Roy H. Parkinson, M. D., Visiting Oculist and Aurist to St. Joseph's Hospital, San Francisco, California; Illustrated; The C. V. Mosby Co., St. Louis; 1925; $2.25.

According to the author's statement there is no other book available for class room work in a Nurses' Training School on the subject of Eye, Ear, Nose and Throat.

This book impresses the reviewer that it will serve its purpose admirably. The language is clear and simple. The illustrations should assist materially in presenting the subject.—O.H.B.

The Antidiabetic Function of the Pancreas and the Successful Isolation of the Antidiabetic Hormone-Insulin. ..By Professor J. J. R. Macleod and Professor E. G. Banting; The Beaumont Foundation Lectures, series number two, auspices of the Wayne County Medical Society, Detroit, Michigan, 1923; C. V. Mosby Co., St. Louis, 1924; price $1.50.

A small thin book of 69 pages but telling a story more interesting to many members of the human race than any other book excluding, of course, those on theological subjects.—O.H.B.

Nursery Guide for Mothers and Children's Nurses. By Louis W. Sauer, Ph. D., M. D., Senior Attending Pediatrician, Evanston Hospital; formerly Attending Physician, Chicago Infant Welfare, and Assistant Attending Phyiscian Children's Memorial Hospital, Chicago; C. V. Mosby Co., St. Louis; second edition, 1926; $2.00.

No person more than a mother deserves and needs the most meticulous scientific training for her vocation. Good books on proper subjects for her to read make a start, at last, in the right direction. The mother who becomes properly educated for her task furnishes a family, probably father included, less unwilling to cooperate with the doctor.

This little book is one which admirably fills the requirements expected of it. "It tells how to care for children in health and disease." It repeatedly admonishes the calling of the family physician; therefore he who recommends it does two good turns.—O. H. B.

Medical and Surgical Report of the Roosevelt Hospital. New York; second series, 1925, based on the work of the years 1915-1924 inclusive; Editorial Board—Andrew T. Martin, M. D., Thomas C. Peightal, M. D., Alfred Stillman, M. D., Henry C. Thatcher, M. D., Davenport West, M. D., and Kirby Dwight, M. D., Chairman; Paul B. Hoeber, Inc. publisher, New York City; 1925; $5.00.

This is a collection of thirty-four papers by staff members of the Roosevelt Hospital. A number of the papers are published here for the first time. There are many important subjects ably discussed. Among these may be mentioned: Fractures of the Elbow; Results of Operation of 150 Cases of Goiter; Nonprotein Nitrogen and Blood Pressure; Intractable Vulvar Ulcer (apparently) Caused by Proteus

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The Thyroid Gland. By Professors Chas. H. Mayo and Henry W. Plummer; The Beaumont Foundation Lectures, series number four; auspices of Wayne County Medical Society; Detroit; C. V. Mosby Co., St. Louis; $1.75.

Professors Mayo and Plummer speak with the voice of authority—since 1892, 30,628 operations for thyroid disease upon 22,728 patients. No figures as to the number treated by other methods are given. All will concede this number of cases affords wonderful opportunities. These two lectures give the status of the thyroid question at present or at least at the time these two lectures were given.

Plummer's theoretical discussion of the problem is particularly interesting.—O. H. B.

Symptoms of Visceral Disease. A Study of the Vegetative Nervous System in Its Relation to Clinical Medicine. By Francis Marion Pottenger, A. M., M. D., L. L. D., F. A. C. P., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Calif., Author of "Clinical Tuberculosis," "Tuberculiin in Diagnosis and Treatment," "Muscle Spasm and Degeneration," etc., third edition; with 86 text illustrations and 10 color plates; the C. V. Mosby Co., St. Louis, 1925.

None but a master mind would tackle such an intricate problem nor could carry it to such a successful issue as is evidenced by this book. There is a wealth of material in the book that is stupifying even to contemplate a nodding acquaintance with, to say nothing of its mastery so as to be able to make a book of it. The author's familiarity with embryology, physiology, anatomy, endocrinology, etc., shows him to be a thoroughly trained clinician.

The vegetative nervous system is the involuntary system. The voluntary nervous system obeys the will and initiates activity of the striated muscular system; but the vegetative system presides over the metabolism of the muscles, their blood vessels, the glandular secretions of the body and controls all unstriated muscle.

The vegetative system has two divisions: the sympathetic and the parasympathetic.

The sympathetic nervous consists of a chain of lateral ganglia lying on each side of the vertebral column, collateral ganglia lying farther away from the vertebra, terminal ganglia in the muscle of the viscera, numerous plexuses of fibers supplying the various tissues, and white and gray communicating branches to the central nervous system. Tht parasympathetic system is composed of the vagus and the pelvic nerve.

The sympathetics alone supply the sweat glands, pilimotor muscles, most of the urogental structures and many of the blood vessels; they furnish activating fibers to heart, sphincters of the intestines, bladder and trigone of the bladder, to which the parasympathetics send inhibitory fibers; the sympathetics supply inhibiting fibers to the pupil, the lachrymal and salivary glands, the structure of the head and the enteral system, to all of which the parasympathetics send activating fibers.

In the tissues supplied by both the sympathetics and the parasympathetics each antagonizes the other and normally one should exactly counterbalance the other. One system may be more active than the other in certain individuals; in case the parasympathetics are the more active the individual is designated vagatonic and if the sympathetics are the more active, sympathetotonic.

From any structure in which there is a pathologic process there are reflexes through either or both the sympathetics and the parasympathetics. These reflexes may be motor, sensory or trophic. The motor reflex may be in muscle or gland—muscle spasm or increased secretion respectively resulting. The structures affected by the reflex actions may be at some distance from the original lesion.

This book gives all the facts known to date on the vegetative nervous system. The author quotes freely from other workers. A surprising amount of the work, however, is original with Dr. Pottenger. He has endeavored especially to present its bearing on clinical medicine.

The labor on such a book is monumental. It would be too much to ask that it were perfect. The reviewer would detract none from this splendid work by criticism. Had Dr. Pottenger a kindly but severe critic to go over all of his manuscript, tautology and repetitions would certainly have been reduced and unneeded words would have been eliminated. For example on page 279, last line in third paragraph has: "a real genuine part of disease processes." On page 257 in third paragraph speaking of insulin he says: "This product is one of the great advances made in organotherapy." Six lines lower he says, "It is one of the great advances in clinical therapeutics." There are numerous places where the same thing is said in varying phraseology which would appear not to strengthen the text, or the force of the argument. Later editions will doubtless eliminate many of these defects. There is too much

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of value written in this age for an author to inflict his readers with more words than necessary to convey the thought.

The proof reading was most carefully done as the reviewer noted but one misspelled word in the 400 pages. The work of the publisher is commendable.

Any physician or surgeon who reads and rereads this excellent book will be made thereby a better physician or surgeon.—O. H. B.

Clinical Features of Heart Disease—An Interpretation of the Mechanics of Diagnosis for Practitioners. By Leroy Crummer, M. D., Professor of Medicine, University of Nebraska; Introduction by Emanuel Libman, M. D., Physician to Mount Sinai Hospital; Professor of Clinical Medicine, Columbia University, N. Y.; Paul B. Hoeber, Inc., N. Y.; 1925; $3.00.

This book is an outgrowth of the author's instructorship in the School of Military Medicine at Fort Oglethorpe on cardiac diagnosis.

The author is emphasizing the extreme importance of careful study of clinical phenomena relative to the affections of the heart.

The reviewer, who has taken more than an ordinary interest in the study of the heart, can say with Dr. Libman, "I found it (Dr. Crummer's book on Heart Disease) so interesting, profitable and enjoyable that I kept on reading until I had finished it."

Any physician interested much or little in heart disease will find this book profitable.

It has 353 pages with table of contents, index, introduction and contents. The publisher's work is perfect with few exceptions: on page 279, fourth line from bottom occurs: "Intuitipere pcevtion" which is plainly a transposition of the letters of intuitive perception. The first word on page 210 evidently ahs the letters cl missing; inician is otherwise meaningless. These two typographical errors are the sum total that the reviewer noted in his careful study of the book.

The author handles his subject in a masterly manner. Those who have attended the European clinics will recall how a lecturer has taken a cardiac case and lectured upon it for hours, giving details and details of its manifestations. Dr. Crummer's book gives such detail as no other book which has come to the attention of the reviewer. It is a book of clinical facts for clinicians. The reviewer is particularly happy to recommend the book as a near necessity for every physician's desk.—O. H. B.

THE ART AND PRACITICE OF MEDICAL WRITING: By George H. Simmons, M. D., Editor and General Manager Emeritus, American Medical Association; and Morris Fishbein, M. D., Editor, The Journal of the American Medical Association. Published in Chicago by the Press of the American Medical Association.

Probably no other group of men will do as much writing for publication, with as little training for it, as the men of the medical profession. After struggling with some of the efforts of our medical writers, the reviewer enthusiastically recommends to the authors of the profession this attractive little volume by Drs. Simmons and Fishbein. It is the "result of much experience in editing medical periodicals and in study of medical literature," and it gives in convenient form the standards which are used by the editing department of the American Medical Association. The information is definite and detailed.

The titles of the chapters give a gold idea of the ground covered in this book. Some of them are as follows: Style; The Subject and the Material; Construction of the Manuscript; Words; Spelling; Capitalization; Abbreviations; Securing a Bibli-

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ography; Preparation of the Manuscript; Illustrations; Charts and Tables; Revision. These subjects are all treated from the particular angle of medical writing.

The one desirable subject which is not covered, is punctuation. Of course, the rules for punctuating a medical paper are no different from the general rules for punctuation, but present practice seems to vary widely, and it would be convenient to have this subject included with the others so clearly presented.

From a heartfelt sympathy for the editors of our medical periodicals, we would urge every doctor to study this little book carefully and thoroughly before writing a paper to be offered for publication. And it might well be placed in the hands of every doctor's stenographer.—B. W.

NEW AND NONOFFICIAL REMEDIES, 1926, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1926. Cloth. Price, postpaid, $1.50. Pp. 459+XLIII. Chicago: American Medical Association, 1926.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually provides the American medical profession with disinterested critical information about the proprietary medicines which are offered to the profession and which the Council deem worthy of recognition.

The book contains a cumulative appendix (printed on buff paper), which is a list of references to reports of the Council and to other publications dealing with articles not described in New and Nonofficial Remedies. This appendix is thus a valuable and quite extensive bibliography of proprietary and unofficial preparations.

The physician who desires to support the Council actively should obtain a copy of the 1926 edition. Every physician has need for a book of reference such as this volume to which he may turn for trustworthy information with regard to proprietary medicines.

AMERICAN RELIEF ADMINISTRATION BULLETIN: American Medical and Sanitary Relief in the Russian Famine, 1921-1923. By Henry Beeuwkes, M. D., Medical Director.

This interesting account of the medical and sanitary work of the American Relief Administration, of which Herbert Hoover was Director, is well worth perusal. It gives a graphic picture of the terrible suffering which afflicted Russia in the years of 1921 to 1923. In the famine area, the expedition found more than 25,000,000 people starving, and they furnished food daily to more than 10,000,000 people. The report, with its dry figures, is more startling than any fiction could be.—W. W. W.

ANESTHETISTS MEET

The annual meeting of the Mid-Western Association of Anesthetists will be held October 11-14, 1926, in Kansas City, Mo., at the same time as the Clinic Week there. Headquarters, Baltimore Hotel.

An interesting and attractive program is in the process of making. Any physician or dentist desiring to read a paper should send the title of his paper to the secretary very soon.

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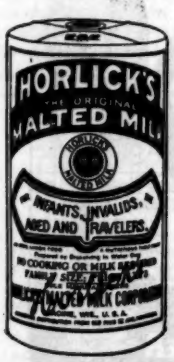

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MEETING EMERGENCIES

Associated with many present-day emergencies in which the health of a community is concerned, in which, perhaps, the lives of many persons are in jeopardy,—are hurry calls from physicions for biological products.

The discovery of smallpox in a neighborhood and vaccination by the wholesale; an explosion, such as occurred at Lake Denmark, N. J., where the possibility of many cases of tetanus threatened; an outbreak of diphtheria in a school or community; a mad dog scare—all these are emergencies in meeting which the medical profession is depending more and more upon the administration of biological products.

Physicions in most instances, even in private practice, want immediate service in this form of treatment. They wish to be sure of the potency of these biologics and they depend in nearly every instance upon pharmacists to provide ready and effective cooperation in both quality and service.

In consideration of these demands, many of them amounting to emergency proportions, E. R. Squibb & Sons are providing greater facilities for furnishing both the medical and the pharmaceutical professions with the products whose delivery in the shortest possible time may save innumerable lives.

Through its depots that are being opened in various cities throughout the United States, the House of Squibb is providing sources of supply for arsphenamines, insulin and biological products, kept under proper refrigeration and quickly available at any hours to the physicians and the pharmacists of the respective neighborhoods.

Thus far depots have been established as follows:

New Orleans, La., Depot at 402 Queen and Crescent Building, 344 Camp Street, Telephone--Day—Main 8636; Night—Walnut 4392-J.

Pittsburgh, Pa. Depot at 604 Maloney Building, 339 Second Avenue, Telephone—Court 1220.

Minneapolis, Minn. Depot at 237 Transportation Building, 317 Second Avenue, South, Telephone: Day—Geneva 3248; Night—South 8716.

Seattle, Wash. Depot at 216-217 Crary Building, Fifth and Union Streets, Telephone, Elliot 1878.

Baltimore, Md. Depot at 1027 Munsey Building, 5 North Calvert Street, Telephone: Calvert 4308.

Additonal depots with similar facilities are being planned for Los Angeles and Boston.

Similar service will, of course, continue to be provided to pharmacists and physicians through the New York office, 80 Beekman Street, and through the various branches, located as follows:

Chicago, Ill., at 323 West Lake Street; San Francisco, Calif., at 608 Folsom Street; Kansas City, Mo., at 706 Delaware Street; Atlanta, Ga., at 270-272 Ivy Street.

Pharmacists should advise their physicians of these exceptional facilities, the greatest value of which will be apparent in emergencies where, upon early delivery, may depend the life of one or many persons. Make a note of street and telephone numbers of the nearest Squibb depot or branch. Every progressive pharmacist should talk it over with the Squibb representative in his territory so that when that emergency arises there will be no confusion, no lost motion but simply an immediate call for the product needed and equally prompt delivery.

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THERMO-TEX BABY BINDERS

Every new-born baby requires a bandage or binder to hold the navel dressing in place, to prevent rupture and to keep the abdomen warm.

The THERMO-TEX Baby Binders fulfill these requirements, they are made of pure wool filling, long staple cotton warp and contain no rubber. They have the elasticity and comfort of the ACE Bandage, plus warmth of wool.

The pure wool gives the necessary warmth to the abdomen and, being elastic, the binders conform to the abdominal expansion after feeding. They give the needed support to the navel and prevent rupture.

THERMO-TEX Baby Binders will not slip and will not hinder respiration. The latter quality is of the utmost importance because the respiration of the new-born is diaphragmatic and a tight and non-elastic binder will make the descent of the abdomen difficult and interefere with breathing.

The binders are fastened, not too tight, either with very small safety pins or basted with a needle and thread. The fastening should be done one side of the front, preferably on the left. Never fasten in the back.

THERMO-TEX Baby Binders should be washed with soap and hot water and dried on a flat surface without stretching. The edasticity, which is somewhat lost by steady use, is thus entirely restored. It is advisable to have three or more THERMO-TEX Baby Binders, thus permitting a change as often as necessary.

THERMO-TEX Baby Binders come in sets of three and are made in two sizes: 4″ wide x 22½″ long and 6″ wide x 18″ long. They are manufactured by Becton, Dickinson & Co., Rutherford, N. J.

A STANDARD FOR PITUITARY EXTRACT

One of the pleasing features of the Tenth Revision of the U. S. Pharmacopoeia is the inclusion therein of a definite standard of activity for pituitary extract. Inasmuch as pituitary extract is best known as an oxytocic, it is the effect of the extract upon the uterus of a virgin guinea-pig that constitutes the official test. Some manufacturers, however, among them Parke, Davis & Co., apply the pressor or blood-pressure-raising test as well, since pituitrin (pituitary extract, P. D. & Co.) is administered for its effect upon the arterial system in hemorrhage and other conditions, and for its regulating effect upon both the intestinal musculature and the musculature of the bladder.

It is impossible for the physician to judge of the activity of a pituitary preparation by physical examination of it. Manufacturing methods have made it possible to produce pituitary extracts not only far below the standard, but far above it; hence the urgent necessity of the pharmacopoeial requirement in the interest of definite dosage.

In this case, however, as in many others, the physician is dependent upon the manufacturer not only because he himself has none but clinical means of testing the activity of the product, but because the products of different houses vary, and possibly also the product of the same house at different times. A manufacturing concern of recognized scientific standing is really the only guaranty of quality trat the phyisican has.

MEDICAL LIBRARY—About 75 volumes, books new and old. Good condition. Less than cost price. Prefer to sell in one lot, for cash. Mrs. H. O. Darnall, 2935 Grant Ave., El Paso, Texas. jja

FOR SALE—Medical Library, office fixtures, surgical equipment. Complete office outfit, from the estate of Dr. R. C. Hoffman. For particulars, or list of articles, address Stuart S. Hoffman, Deming, New Mexico. aso

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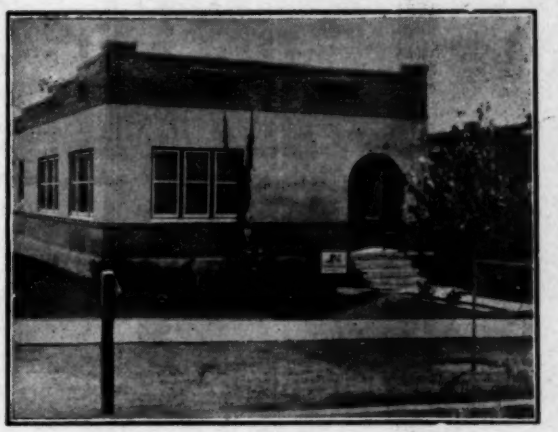

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STANDARDS

FOR PITUITARY EXTRACTS

Pituitrin was introduced to the medical profession by Parke, Davis & Company eighteen years ago, and ever since that time we have been most careful of its potency and uniformity. Pituitary extracts from other sources have appeared on the market in more recent years, and they have been found to vary in potency all the way from 5 per cent to 140 per cent of the standard established for Pituitrin.

In order to end this indefensible and even dangerous situation the United States Pharmacopeia has now stepped into the breach with a definite standard of activity, and it is cause for gratification that this standard is the exact equivalent of that which we have maintained for Pituitrin "O" during many years. Not only that, but the same step has been taken also by the League of Nations. At the Geneva Conference last year an international unit for pituitary extracts was adopted, and a product having a potency of ten units per cc has the same strength as that now recognized by the U.S.P. and that established by us long ago for Pituitrin "O".

It is to be hoped that the establishment of both an American and an International standard for pituitary extracts will in part correct a situation which has become intolerable. At least a definite standard of strength now has the stamp of government authority. Gratifying as this is, however, it remains to be said that all pituitary extracts will not henceforth be of equal virtue.

Entirely apart from the question of potency, we have established other standards for Pituitrin which have not yet been written into official requirements. As the result of 18 years of steady and continuous work on Pituitrin we have developed a product which in uniformity, in stability, and in *low content of protein matter* surpasses any other pituitary extract which we have been able to find on the market and subject to examination in our laboratories.

PARKE, DAVIS & COMPANY

DETROIT, MICHIGAN

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